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ABSTRACT

The diffusion of Individually Guided Education in Multiunit Schools (IGE/MUS) from the Wisconsin R & D Center for Cognitive Learning to local schools, was explored in terms of the organizational relationships and roles between the R & D Center, resource system, state education agencies (SEA), teacher education institutions (TEI), both mediating systems, and local schools (LEA). The focus of the study revolved around the independent variables of linkage, structure, and capability and the dependent variable of diffusion. A semistructured interview schedule was used to collect data from system representatives in three states, to probe for relationships, unanticipated barriers, and concerns associated with diffusion. Major findings of the study were: (a) IGE/MUS is the goal which acts as reference point for system relationships; (b) linkage between the TEI and user system was positively related to diffusion of IGE/MUS; (c) frequency of interaction was, in descending order, TEI-user systems, resource system-mediating system, SEA-user system, and resource system-user system; and (d) internal factors of structure and capability had varying consequences on diffusion. Ancillary findings were that internal variables of structure and capability supported linkage; linkage constituted the primary means for facilitating the diffusion; and that the TEI exhibited disproportionately high influence on diffusion. (Author/HMD)

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Technical Report No. 308 (Part 1 of 2 Parts)

THE DIFFUSION OF AN INNOVATION THROUGH INTERORGANIZATIONAL LINKAGES: A COMPARATIVE CASE STUDY

Report from the Project on Organization for
Instruction and Administrative Arrangements

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STATEMENT OF FOCUS

Individually Guided Education (IGE) is a new comprehensive system of elementary education. The following components of the IGE system are in varying stages of development and implementation: a new organization for instruction and related administrative arrangements; a model of instructional programing for the individual student; and curriculum components in prereading, reading, mathematics, motivation, and environmental education. The development of other curriculum components, of a system for managing instruction by computer, and of instructional strategies is needed to complete the system. Continuing programmatic research is required to provide a sound knowledge base for the components under development and for improved second generation components. Finally, systematic implementation is essential so that the products will function properly in the IGE schools.

The Center plans and carries out the research, development, and implementation components of its IGE program in this sequence: (1) identify the needs and delimit the component problem area; (2) assess the possible constraints--financial resources and availability of staff; (3) formulate general plans and specific procedures for solving the problems; (4) secure and allocate human and material resources to carry out the plans; (5) provide for effective communication among personnel and efficient management of activities and resources; and (6) evaluate the effectiveness of each activity and its contribution to the total program and correct any difficulties through feedback mechanisms and appropriate management techniques.

A self-renewing system of elementary education is projected in each participating elementary school, i.e., one which is less dependent on external sources for direction and is more responsive to the needs of the children attending each particular school. In the IGE schools, Center-developed and other curriculum products compatible with the Center's instructional programing model will lead to higher morale and job satisfaction among educational personnel. Each developmental product makes its unique contribution to IGE as it is implemented in the schools. The various research components add to the knowledge of Center practitioners, developers, and theorists.

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CHAPTER I

NATURE OF THE STUDY

A major concern of the educational research and practice communities is the exigency for the translation and institutionalization of research products into viable and beneficial educational programs. Concomitantly, resources have been allocated and institutions created that are charged with the responsibility for the development and diffusion of innovations based on educational research. The Wisconsin Research and Development Center for Cognitive Learning is one of these institutions and, as such, it is of pivotal importance in this study.[1] The Wisconsin R & D Center is currently conducting a nationwide diffusion program to expedite the use of its research products by local schools. Conceptually, the utilization of educational research and knowledge by practitioners presupposes the translation and communication of new ideas and techniques and, in many instances, the preparation of practitioners for new roles and behaviors.

The mediating system between the sources of knowledge production and research products (resource system), and the practitioners utilizing research products (user system), was the central focus of this study. The explication and delineation of the interorganizational relationships and processes among the resource system, mediating system, and user system constituted the first objective of the study. The development of appropriate instrumentation for future empirical measurement of diffusion of educational research products through mediating systems was a second objective of the study. The delineation of a series of propositions dealing with the diffusion of an innovation as a basis for the construction and refinement of a theory of diffusion constituted a third objective of this study.

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[1] One objective of R and D Centers emanated from the . . . two major types of communication gaps existed, breaking the continuum: gaps between the basic researchers and the developers and the gap between the developers and the practicing workers. The Research and Development Centers are assigned the task of bridging these gaps and of creating organizational arrangements which facilitate communication." Burkhart Holzer, "The Research and Development Center Program in the United States," in Emerging Strategies for Educational Change (Toronto: Ontario Institute for Studies in Education, 1966), p. 51.

The Wisconsin Research and Development Center for Cognitive Learning (R and D Center) represented the resource system, state education agencies (SEA) and teacher education institutions (TEI) represented the mediating system, and local educational agencies (LEA) represented the user system. The user system was the recipient of resource and mediating system influence in the diffusion of an innovation. The relationship of diffusion (the dependent variable) to interorganizational linkage, organizational structure, and system capability (the independent variables) constituted the conceptual focus and theoretical theme for the study.

In this chapter a delineation of the (1) background of the problem, (2) review of the related literature, (3) questions to be answered, (4) significance and limitations of the study, and (5) overview of the study will be presented.

Background of the Problem

The lag between the creation and development of theoretically based educational programs and their institutionalization in schools has been estimated to be a half century.[2] The need and promise for the timely and efficient diffusion of research products from their source to their users represents the practical problem from which this study emanated. The problem of the transmission of new knowledge and educational products to educational users introduces the generic problem of bridging the chasm between theory and practice in education. This problem is exacerbated by the limited capability of local schools to become aware of the need for planned change and to manage planned change. The capability to plan, introduce, install and manage discrete changes so that (1) the integrity of the change is protected, (2) the change is suited to the conditions in the school, (3) the conflict over the change is resolved, (4) the results of the change improve performance, and (5) the consideration of future change is heightened, is minimal as evidenced by the incidence of non-utilized and subverted changes.[3] Related to the need for narrowing the theory to practice gap is the need for incorporating organizational theory within paradigms of educational change. That researchers should initiate and develop explanatory schemes from an organizational theory perspective has been attested by Carlson:

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[2] Paul R. Mort, "Studies in Education Innovation from the Institute of Administrative Research: An Overview," in Innovation in Education, ed. by Matthew B. Miles (New York: Bureau of Publications, Teachers College, Columbia University, 1964), p. 318.

[3] Louise M. Maguire, Observations and Analysis of the Literature on Change (Philadelphia: Research for Better Schools, Inc., June, 1970), p. 3.

> Even though a complex organization is the adopting unit few attempts have been made to move organizational theory into the arena of diffusion studies, To me this is alarming because diffusion research in education has been associated with educational administration; it has been associated with that branch of education which should be greatly concerned with organizational problems, concepts and theories. I am further saddened by the lack of concern with organizational theory because it is on this score that I believe that those doing research on diffusion of education innovations can make a significant contribution to the total field of diffusion studies.[4]

Need for Narrowing the Theory Practice Gap

The question of the relevancy and application of educational research has been voiced by concerned publics, educators, and policy formulators. USOE officials, professors of education, and directors of research centers have proclaimed that promised and practical utilization of research has not appeared,[5] that there has been a minimal systematic effort directed toward the application of educational research products,[6] and that the art of education development is rudimentary.[7] The slow accretion of education innovation has been documented empirically by Mort.[8] However, documentation of the need for accelerating and improving the theory-practice continuum has been mostly descriptive and in some instances rhetorical. Nyquist asserted that there is a "need to reduce the gap in time between the discovery of a good idea and when it is given practical effect in the field,"[9] and Dreyfus,[10] focusing on the field on instructional media, contended that research findings have been ignored or overlooked by producers. Lippitt,[11] and Halpin,[12] delineating factors inhibiting the utilization of research, noted that educational users did not operate within structures which facilitated research utilization. While addressing the state of education research in the United States, Guba [13] noted new programs were not being adopted and, reinforcing Guba's contention of minimal research utilization, Carter emphasized that:

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[4] Richard O. Carlson, "Summary and Critque of Educational Diffusion Research," in Research Implications for Education Diffusion: Major Paper Presented at National Conference on Diffusion of Educational Ideas (East Lansing, Michigan: Michigan Department of Education, 1968), p. 16.

[5] Launor F. Carter, "Knowledge Production and Utilization in Contemporary Organizations," in Knowledge Production and Utilization in Educational Administration, ed. by Terry L. Eidell and Joanne M. Kitchel (Columbus, Ohio: University Council of Educational Administration and Eugene Oregon: Center for the Advanced Study in Education Administration, 1968), p. 3.

[6] Robert R. Mackie, and Paul R. Christensen, Translation and Application of Psychological Research (Goleta, California: Human Facotrs Research, Inc., 1967), p. 2, cited by Launor F. Carter, op. cit., p. 11.

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[7] Norman J. Boyan, "Problems and Issues of Knowledge Production and Utilization," in Knowledge Production and Utilization in Educational Administration, ed. by T. Eidell and J. Kitchell, op. cit., p. 23.

[8] P.R. Mort, "Studies in Educational Innovation," in Innovation in Education op. cit., p. 318.

[9] Ewald B. Nyquist, "Emerging Strategies and Structures for Educational Change in the United States," in Emerging Strategies and Structures for Educational Change, op. cit., p.7.

[10] Lee S. Dreyfus, "Closing the Gap - Research and Practice" (paper presented to National Association of Educational Broadcasters, Oxford, Ohio: Miami University, March 22, 1965), p. 3.

[11] Ronald Lippitt, "A Comparative Analysis of the Research Utilization Process" (excerpts from a symposium at the Annual Meeting of the American Educational Research Association, Chicago, Illinois, February 18, 1966), p. 18.

[12] Andrew W. Halpin, "Problems in the Use of Communication Media in the Dissemination and Implementation of Educational Research," in Dissemination and Implementation, ed. by Keith Goldlammer and Stanley Elam (Bloomington, Indiana: Phi Delta Kappa, 1962), p. 81.

> Traditionally it has been assumed that there is a fairly smooth sequence from research through a developmental phase to the utilization of research results. Evidence shows that this sequence is seldom followed in actual practice and that special efforts must be made to assure that the results of research are applied.[14]

From a rational perspective, the diffusion of new practices, which is ynonymous with effecting the utilization of knowledge by educational practioners, has been considered retarded, chaotic, haphazard and inadequate.[15] Concomitantly, "the link between inventor and user is probably one of the weakest interfaces in our contemporary educational system."[16] Additional substantiation of the pervasiveness of the problem has been voiced by Pellegrin:

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[13] Egon G. Guba, The Place of Educational Research in Educational Change (Bloomington, Indiana: National Institute for the Study of Educational Change, June 8, 1967), p. 21.

[14] Launor F. Carter, From Research to Development to Use (Santa Monica, California: System Development Corporation, Report No. SP-2332, January, 1966), ERIC Document Resume, ED 026 741.

[15] Ronald Lippitt, "The Use of Social Research to Improve School Practice," in Concepts For Social Change, ed. by Goodwin Watson (Washington, D.C.: NTL, 1969), pp. 76-78.; Sidney Eboch, "The Study of Change as a Concept in Education," Theory Into Practice, V (February, 1966), p. 36.; John B. Goodlad, "Change," I/D/E/A Reporter (Fall quarter, 1969), pp. 2-3.; Francis S. Chase, "R & D In the Remodeling of Education," Phi Delta Kappan, LI (February, 1970), p. 302.

[16] Everett M. Rogers and Lynne Svenning, Change in Small Schools (University Park, New Mexico: New Mexico State University, ERIC Clearinghouse on Rural Education and Small Schools, 1969), p.5.

> . . . the culture of American Education is not oriented toward a systematic search for knowledge; nor does it view either theory or research as necessary bases for reliable and valid knowledge.[17]

Schmuck has suggested three causes for the gaps between research knowledge and administrative practice which serve as barriers to change (1) the lack of effective communication between researchers and school administrators, (2) the lack of psychological linkages between administrator's knowledge and his actions, and (3) the lack of connection between practitioner's action repertoire and the requirements of the situation.[18]

That a need exists for narrowing the theory-practice gap has been stated and reiterated by researchers, policy formulators, and professors of education. The generic need for diffusing the products of research to educational practitioners is the basis for the implementation strategy of the Wisconsin Research and Development Center. A description of the innovation developed by the R and D Center and a summary of recent research which has focused on the operational characteristics of the innovation will be presented and followed by an overview of the implementation strategy of the R and D Center.

The Theory and Practice of the Multiunit School.--The Wisconsin Research and Development Center for Cognitive Learning (R and D Center) has developed a system of individually guided education (IGE). Three major problems, characteristic of most schools, are addressed by IGE: lack of time for improving instruction, minimal utilization of the varied interests, experiences, and capabilities of the instructional staff, and absence of organizational mechanisms for principals and teachers to mutually plan, implement, and evaluate new educational programs. Consequently, IGE focuses on improving educational opportunities for children, providing for self-renewal of the staff, and facilitating research and development within schools.[19] Eight general conditions have been observed by the R and D Center as schools move from age-graded, self-contained classrooms to a system of Individually Guided Education:

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[17] Roland J. Pellegrin, An Analysis of Sources and Processes of Innovation in Education (Eugene, Oregon: University of Oregon, 1967), p. 22.

[18] Richard Schmuck, "Social Psychological Factors in Knowledge Utilization as Applied to Educational Administration" (Paper presented at the University Council for Educational Administration Career Development Seminar, University of Oregon, Portland, Oregon, October, 1967), pp. 8-11.

(1) The characteristics of individual learners are emphasized

(2) The varying learning styles of pupils dictate curriculum materials

(3) The size of instructional groups promotes staff differentiation on the one hand and comradery on the other hand

(4) The values of autonomy and accountability interface with responsibility and coordination

(5) The identification of educational needs is achieved through problem-solving processes

(6) The characteristics of the community are incorporated into the educational program

(7) The physical configuration of the school is changed to support IGE

(8) The development of the staff is given primary attention.[20]

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[19] Herbert J. Klausmeier, *et al.*, *Individually Guided Education and the Multiunit Elementary School: Guidelines for Implementation* (Madison, Wisconsin: Wisconsin Research and Development Center for Cognitive Learning, 1971), p. 5.

[20] *Ibid.*, pp. 5-9.

There are seven components of IGE. The multiunit school (MUS) represents the organizational-administrative component.[21] The objectives of this organizational-administrative structure is to provide for:

> [1] educational and instructional decision-making at appropriate levels; [2] open communication among students, teachers, and administrators; [3] and accountability by educational personnel at various levels.[22]

The multiunit school is the organizational means by which the remaining six components of IGE can be effectively implemented and refined. As such it may be considered an organizational innovation of the R and D Center. A synthesis of theory and practice emanating from the experiences of the R and D Center in trying to promote effective instructional programming for individual students resulted in the organizational-administrative structure of MUS. The three distinct hierarchical levels of MUS are (1) the instructional and research unit, (2) the instructional improvement committee, and (3) the systemwide policy committee.

In the multiunit elementary school (MUS-E) the instructional and research unit (I & R unit) at the classroom level replaces age-graded self-contained classrooms in conventional schools. The I & R unit is staffed by a unit leader, two or three staff teachers, and a combination of aides or interns. The I & R unit has between 100-150 students varying three to four years in chronological age. The unit staff functions as an instructional team and meets at least once a week to plan, implement and evaluate instructional programs for the students in the unit.

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[21] The remaining six components are: (1) a model of instructional programing for the individual student, (2) a model for developing measurement tools and evaluation procedures, (3) curriculum materials, related statements of instructional objectives, and criterion-referenced tests and observation schedules, (4) a program of home-school communications, (5) facilitative environments in school buildings, school system central offices, state education agencies, and teacher education institutions, and (6) continuing research and development to generate knowledge and to produce tested materials and procedures.

[22] Herbert J. Klausmeier, et al. Individually Guided Education and the Multiunit Elementary School: Guidelines for Implementation (Madison, Wisconsin: Wisconsin Research and Development Center for Cognitive Learning, 1971), p. 17.

The instructional improvement committee (IIC), at the elementary school building level, is a new structure comprised of the building principal and the unit leaders. The IIC explicates the educational objectives and delineates the educational program for the school; interprets and implements systemwide and statewide policies that affect the school; coordinates I & R unit activities; and arranges for the use of facilities, time, and materials involving more than one unit. The IIC meets at least one uninterrupted hour per week.

The systemwide policy committee (SPC) is the third hierarchical level of the multiunit school design. The SPC is chaired by the superintendent or his designee and is comprised of central office staff, representative principals, unit leaders, and unit teachers. The SPC identifies functions to be performed in each MUS-E; recruits personnel and arranges for their inservice education; provides instructional materials; and disseminates information within the district and community.[23]

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[23] Operational descriptions and explanations of the formal organizational structure and procedural style of the MUS-E may be found in: Herbert J. Klausmeier, et. al. Individually Guided Education and the Multiunit Elementary School: Guidelines for Implementation (Madison, Wisconsin: Wisconsin Research and Development Center for Cognitive Learning, 1971); Herbert J. Klausmeier, Richard G. Morrow, and James W. Walter, Individually Guided Education in the Multiunit Elementary School: Guidelines for Implementation (Madison, Wisconsin: Wisconsin Department of Public Instruction, 1968); Gerald DiPego, Unit Operations and Roles (Dayton, Ohio: Institute for Development of Educational Activities, Inc., 1970); Wisconsin Research and Development Center for Cognitive Learning, Performance Objectives for Implementation of IGE/MUS-E (Madison, Wisconsin: Wisconsin Research and Development Center for Cogntive Learning, n.d.)

Figure 1 illustrates the formal organizational plan of a multiunit school. The prototypic organizational chart represents a multiunit school of 600 pupils.

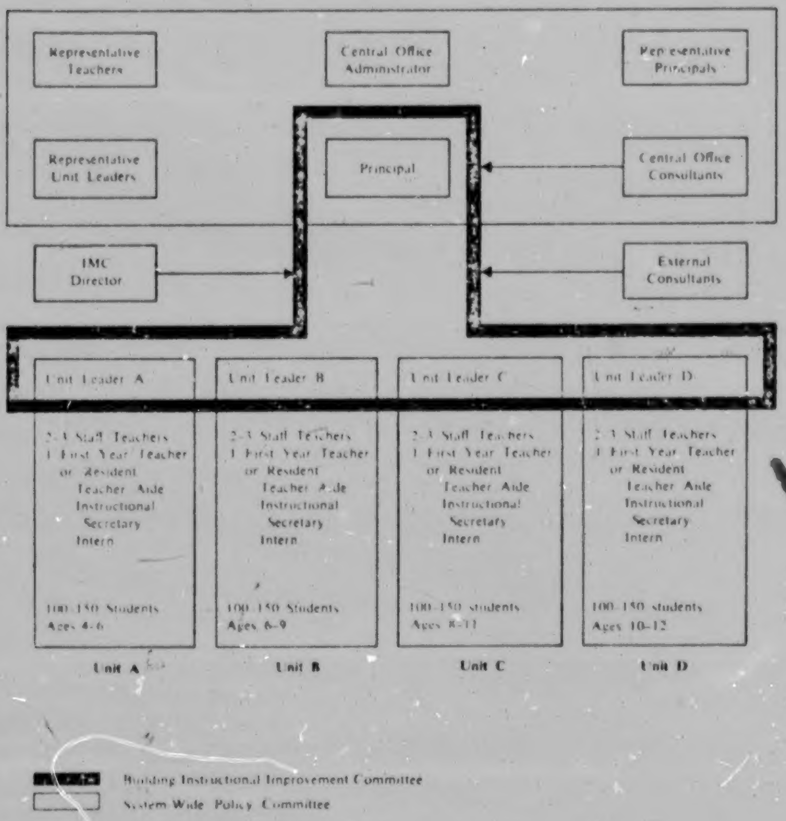
Representative Teachers
Central Office Administrator
Representative Principals
Representative Unit Leaders
Principal
Central Office Consultants
IMC Director
External Consultants
Unit Leader A
Unit Leader B
Unit Leader C
Unit Leader D
2-3 Staff Teachers
1 First Year Teacher or Resident
Teacher Aide
Instructional Secretary
Intern
100-150 Students Ages 4-6
100-150 Students Ages 6-9
100-150 students Ages 8-11
100-150 students Ages 10-12
Unit A
Unit B
Unit C
Unit D
Building Instructional Improvement Committee
System Wide Policy Committee

Fig. 1--Organizational Chart of a Multiunit School.[24]

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[24] H. Klausmeier, et. al., Individually Guided Education and the Multiunit Elementary School, op. cit., p. 21.

Theoretical prescriptions and operational guidelines provide background information for understanding the organizational-administrative arrangements in a prototypic MUS-E. However, the theoretical overview will be balanced with empirical and case studies of operational multiunit schools. Researchers have focused on a number of salient issues dealing with the organizational characteristics of the multiunit school. With over a 1000 MUS-E operational throughout the country in the Fall of 1972,[25] a broad sample base has been available for investigation and research. Six studies, dealing with MUS-E organizational characteristics and functions, central office staff utilization, decision-making roles and patterns in the IIC, effectiveness of and personalistic dimensions in the IIC, effectiveness and personalisitic measures of unit leaders, and the learning climate of pupils, will be summarized below.

The first study to be addressed focused on four conventional and three multiunit schools in Wisconsin during 1967-68. Pellegrin[26] gathered data on (1) interdependence, (2) division of labor, (3) decision-making processes, (4) operational goals, and (5) job satisfaction. Collaboration, a sociometric indicator of interdependence, operated in MUS-Es within units and between unit leaders and the principal, whereas in conventional schools collaboration operated between teachers and the principal.

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[25] Wisconsin Research and Development Center for Cognitive Learning, Individually Guided Education: Eight Annual Report, 1971-72 (Madison, Wisconsin: Wisconsin Research and Development Center for Cognitive Learning, n.d.), p.4.

[26] Roland J. Pellegrin, Some Organizational Characteristics of Multiunit Schools, Working Paper No. 22 (Madison, Wisconsin: Wisconsin Research and Development Center for Cognitive Learning, 1969)

Specialization, the indicator of division of labor, was perceived as extensive by unit leaders and limited by principals and unit teachers. Decision-making prerogatives, authority and influence constituted the third organizational characteristic measured by Pellegrin. In conventional schools individual teachers were the primary decision-makers with the principal setting discretionary limits. In multiunit schools, however, teachers perceived decisions as being made by unit leaders and teachers in a collaborative setting with minimal reliance on the principal for advice or assistance. The operational goals of teachers in multiunit schools focused on giving individual attention and diagnosing the learning problems of students. Teachers in non-multiunit schools ranked insuring basic skill attainment and developing analytical reasoning and problem solving as the top two operational goals. The last organizational characteristics studied by Pellegrin were job satisfaction and environmental climate. MUS-E teachers reported a greater sense of satisfaction and a less rigid atmosphere than did the non-MUS-E teachers.[27] The organizational and administrative arrangement of MUS-E promoted communication among teachers and militated against staff isolation characteristic of conventional schools with self contained classrooms. Consequently, sharing ideas and techniques and increasing morale through staff interaction were facilitated by MUS-E.

The perceptions of MUS-E principals and unit leaders toward the involvement of the director of instruction in the attainment of four change stages is the second study to be summarized. Benka[28] found that unit teachers perception of the involvement of the director of instruction was unrelated to the achievement of dissemination, demonstration, trial, and installation of MUS-E. In addition, principals did not view the director of instruction as highly involved in building operations.

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[27] *Ibid.*, pp. 3-20.

The decision-making roles and patterns of the IIC, the second hierarchical structure of the multiunit configuration, was the focus of a study conducted by Loose.[29] The major findings were that: curriculum decisions received less attention than management decisions which dealt with scheduling and district policies; over half of the decisions in the IIC were made unilaterally by the principals; the unilateral style of decision making was perceived and observed more often than consensual or delegating styles; and the number of years of IIC operations did not affect the kind of decisions, member involvement, or style of decision making.

Inter-member compatibility of the members of the IIC and the effectiveness of the IIC was the thrust of a study conducted by Smith.[30] He found that positive relationships existed between IIC effectiveness and (1) chairman's initiation of structure and consideration and chairman-member compatability, (2) chairman's regard for comfort, well being, status and contribution of members, (3) members' preference for close personal relations toward and from people, (4) chairman who did not dominate or control members, (5) fewer members, and (6) longer monthly meetings. Smith's finding that IIC effectiveness was associated with a principal who did not dominate or control members reinforces Loose's conclusion that IGE theory and IGE practice were not in harmony due to principals dominating IIC decision-making.

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[28] John [illegible] Benka, "The Perception of the Director of Instruction as an Agent of Organizational Change: The MUS-E" (unpublished Ph.D. dissertation, University of Wisconsin-Madison, 1971).

[29] Caroline A. Loose, "Decision-making Roles and Patterns of the Instructional Improvement Committee (IIC) in Selected Eastern Wisconsin Multiunit Elementary Schools Organized Since 1967" (unpublished Ph.D. dissertation, University of Wisconsin-Milwaukee, 1972).

[30] Kenneth B. Smith, "An Analysis of the Relationship Between Effectiveness of the Multiunit Elementary School's Instructional Improvement Committee and Interpersonal and Leader Behaviors" (unpublished Ph.D. dissertation, University of Wisconsin-Madison, 1972).

The fifth study to be reported focused on personality and demographic characteristics of unit leaders rated as being effective by principals and unit teachers. Siudzinski[31] found that unit leaders rated effective by their principal were characterized as intelligent and forthright, whereas ratings by primary unit teachers resulted in an inverse relationship between experience as a unit leader in other units and unit leader effectiveness. Intermediate unit leaders rated effective by the unit teachers were characterized as outgoing, trusting, and sober. Two secondary findings were that demographic characteristics were not related to effectiveness and that 76 percent of the schools followed the R and D Center's guidelines for selecting unit leaders.

The sixth study focused on student attitudes in multiunit and non-multiunit schools. A variety of non-academic attitude variables investigated by Nelson[32] were positively related to the MUS-E organizational design. Pupils in multiunit schools had more positive attitudes than pupils in non-multiunit schools in the following categories: learning climate; self-concept; fellow pupils; instruction; school in general; school plant; and community. Differences were not found between multiunit and non-multiunit school pupils in their attitude toward teachers; their attitude toward administration and staff; and attendance and tardiness.

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[31] Lee J. Siudzinski, "Selected Personality and Demographic Characteristics of Rated Effective Unit Leaders" (unpublished Ph.D. dissertation, Marquette University, 1972).

[32] Richard G. Nelson, "An Analysis of the Relationship of the Multiunit School Organization Structure and Individually Guided Education to the Learning Climate of Pupils" (unpublished Ph.D.-dissertation, University of Wisconsin-Madison, 1972).

These six empirical and case studies provide an overview of the organizational characteristics and functions in operational multiunit schools. The findings, when interrelated with the R and D Center's theoretical descriptions and operational guidelines, provide a basis not only for understanding the significance of the MUS-E organizational configuration but also for appreciating the problems involved with functioning within such a configuration. There is a corresponding need for understanding the processes of installation and implementation of the MUS-E design. Consequently, a description of the R and D Center's implementation strategy and summaries of an empirical and a descriptive study focusing on implementation will be presented.

Wisconsin Research and Development Center Implementation Strategy.--Prior to an explication of the R and D Center's impelenetation model, the assumptions and theoretical rationale of the model will be presented. A basic assumption underlying the implementation strategy is that teacher and administrator behavior can be modified so that it is compatible with IGE/MUS-E. Pre-service, in-service and operational experiences are assumed to facilitate the required behavioral changes.[33]

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[33] Stephen J. Knezevich and Joseph Lins, Strategies for Educational Change: The Wisconsin R & D Center General Implementation and Staff Development Models for IGE/MUS-E, Working Paper No. 93 (Madison, Wisconsin: Wisconsin Research and Development Center for Cognitive Learning, 1972), pp. 28-29.

The implementation model is composed of a number of related factors as opposed to a linear combination of stages. Klausmeier, in contrasting the theoretical basis of the R & D Center's strategy with the linear model proposed by Guba and Clark, stated "There are several relations among research, development, and improved practice rather than a single linear research-development-practice sequence".[34] The theoretical framework of the implementation model is based on the precepts that (1) initiation of research activities may come from analysis of deficiencies, design and development of products, and conduct of basic research, (2) outputs of basic research are knowledge as opposed to products, and (3) relationships in the research, development, and practice chain are multiple.[35] The operational model for implementation is composed of four phases: awareness; installation; maintenance; and refinement-institutionalization. The major objective of the implementation plan emanates from the need for quality and effectiveness in the behavior of operational personnel in order to successfully install the multiunit school.

> It is essential that personnel at all levels such as staff teachers, lead teachers, building principals, and central office personnel acquire the unique philosophical, psychological, and operational insights and competencies required for successful implementation of the multiunit school.[36]

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[34] Herbert J. Klausmeier, "Research and Development Strategies in Education," in Research and Development Strategies in Theory Refinement and Education Improvement, ed. by Herbert J. Klausmeier, et. al., Theoretical Paper No. 15 (Madison, Wisconsin: Wisconsin Research and Development Center for Cognitive Learning, 1968), p. 3.

[35] Ibid., p. 3.

[36] Herbert J. Klausmeier, et. al., Individually Guided Education and the Multiunit Elementary School, op. cit., p. 78.

A summary of the four phases of the model will be presented and followed by a review of two studies which focused on MUS-E implementation activities and problems.

The initial implementation phase, awareness, is based on the Wisconsin Model developed by the Wisconsin Department of Public Instruction. A component of the Wisconsin Model is directed toward the orientation of local school administrators and central office personnel of interested school districts. The objective of the orientation is "... to develop an understanding of the IGE concepts and functioning of the MUS-E."[37] This first phase has been operationalized by the R & D Center by mass mailings to elementary school principals in order to promote interest and identify prospective MUS-E adopters. One day information-giving conferences, conducted at selected sites throughout the country, are then held. These conferences are comparable to the orientation conference in the Wisconsin Model. Although the primary target audience is principals, district central office staff, state education agency (SEA) staff, and teacher education institution (TEI) staff are also invited.

The second phase of the implementation model includes four operational stages: a one-day workshop for administrators and central office personnel; a three-day workshop for principals and prospective unit leaders; a three-to five-day pre-opening of school workshop for the entire building staff; and four half-day inservice sessions for the entire building staff.[38] The first two components of the first-year installation phase are associated with the following objectives (1) developing awareness of IGE/MUS-E and clarifying the written agreement between the Center, implementation agencies, and local schools, and (2) training principals and unit leaders of new multiunit schools. The third component of the first-year installation phase, the pre-opening of school workshop, is conducted by school personnel who attended the first two workshops. The fourth component, four half day inservice sessions, is conducted by state education agency staff. The implementation unit of the R & D Center conducts the workshop during the first year of inservice training and simultaneously trains the state or local coordinator who in turn conducts inservice in subsequent years. Concurrent with the first-year implementation phase is the development of cooperative relationships with teacher education institutions and the state's department of education. According to the Wisconsin Model, "The R & D Center serves a resource function. In this framework, all agencies can play an effective role in installing and maintaining multiunit schools in interested school districts."[39] Consequently, the R & D Center conducts on-campus, one-week institutes for personnel from cooperating state education agencies and teacher education institutions. The objective of the institutes is to prepare SEA and TEI representatives to conduct the first-year installation activities and the maintenance-refinement program, phase three of the installation model.

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[37] Ibid., p. 78.

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[38] Ibid., p. 79.

[39] Ibid., p. 70.

The third phase of the installation model, maintenance, addresses the immediate needs of practicing MUS-E principals, unit leaders, and staff reading teachers. One-week institutes are conducted by the R & D Center and cooperating implementation agencies. Teacher education institutions, the cooperating implementation agencies, contract with the R & D Center to conduct the institutes which focus on improving competencies and functions related to the three groups.[40]

The fourth phase, refinement and institutionalization includes academic programs and practicums. Upon admission to a teacher education institution offering programs in IGE/MUS-E, the student is exposed to a combination of course work, a practicum in a multiunit school, and clinical experiences. The program leads toward a master's degree and a post-master's specialist certificate.[41]

The four phases of the national implementation model involve cooperative relationships and mutually reinforcing roles among the R & D Center, state education agencies, teacher education institutions, and local educational agencies. A delineation of these roles will be presented prior to the summary of two studies which focused on the implementation of MUS-E. However, before presenting the four organizational roles, it should be noted that the need for inter-organizational cooperation was succinctly stated by the National Evaluation Committee of the R and D Center.

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[40] Ibid., pp. 83-86.

[41] Ibid., pp. 86-87.

> The Center correctly (in the Committee's view) perceives of product implementation as a process which must be derived cooperatively with the product's users -- state departments of education, school districts, and other educational institutions. It does not appear to the Center that product implementation can be achieved successfully by simply delivering its product to the outside agency. Neither is simply telling about the product sufficient.[42]

The first two phases, awareness and first year implementation, involve the R & D Center, SEAs, and LEAs whereas the third and fourth phases, refinement and institutionalization, involve the R & D Center, TEIs, and SEAs.[43] Each agency works cooperatively to develop statewide IGE networks which provide a facilitative environment for the implementation and institutionalization of MUS-E. The R & D Center gradually withdraws from active implementation participation as the SEA, TEIs, and LEAs gain experience and competence in operating the IGE network. The R & D Center is then able to focus on additional states in developing comparable IGE networks, "Complete statewide networks are essential for IGE to become a self-sustaining, self-renewing system."[44] A delineation of the roles of each agency is presented in Figure 2.[45] However, the roles may vary among states due to the legal and traditional constraints of education, size, finance, and leadership.

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[42] National Evaluation Committee of the Wisconsin Research and Development Center for Cognitive Learning, Minutes and report of the National Evaluation Committee meeting of November 19-22, 1972. (Mimeographed.)

[43] Wisconsin Research and Development Center for Cognitive Learning, "A Design for Implementing the Products of Educational Research and Development" (unpublished report, Wisconsin Research and Development Center for Cognitive Learning, Madison, Wisconsin, January, 1973), pp. 1-2. The third and fourth phases, originally titled as maintenance and institutionalization and refinement are referred to in latter publications as refinement and institutionalization.

Two studies have been completed concerning the nationwide implementation of MUS-E and the problems encountered by local schools during the implementation. A summary of the studies provides insight into the complexity of diffusing an innovation nationwide and the problems and constraints faced by local schools attempting to institutionalize an innovation.

A national study, conducted during the 1971-72 school year, focused on the effectiveness of the installation of MUS-E in first year schools. The process-validation study, commissioned by USOE, and conducted by the Educational Testing Service, under the direction of Ironside,[46] resulted in fourteen major findings (1) wide variation in agreement among implementors concerning the conditions for school participation, (2) wide variation in the definitions of the initial adoption steps, (3) wide variation in the implementation militated against the determination of the number of adopters, (4) little variation in the perception that implementation guidelines lacked specificity, (5) wide variation in the implementation

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[44] _Ibid._, p. 3.

[45] _Ibid._, p. 4.

[46] Roderick A. Ironside, _The 1971-72 Nationwide Installation of the Multiunit/IGE Model for Elementary Schools, Vol. 1_ (Princeton: Educational Testing Service, 1972.)

Responsible Agency	Organizing an Integrated Statewide Network	Providing In-service to Initiate Use of Products	Providing In-service to Product Users During First Two Years	Conducting Short Intensive Institutes	Conducting on-Campus Undergraduate and Graduate Programs
State Education Agency	X	X	X	?	
Teacher Education Institutions	?	X	X	X	X
Local Education Agencies		X (For its own schools)	X (For its own schools)	X (For its own schools)	
Shared	X	X	X	X	

Fig. 2--Major Organizational Roles In The Diffusion of MUS-E

of the four minimal conditions of MUS-E,[47] (6) wide variation in the number adopting IGE programing, (7) little variation in allocating time for unit meetings or assigning aides, (8) wide variation in the installation activities of states, districts, schools, and units, (9) wide variation in the training sequence, (10) wide variation in the training opportunities, (11) little variation in the concern that training was too fast and too theoretical, (12) wide variation in the amount of inservice training, (13) wide variation of attitudes toward MUS-E and IGE patterns and implementation processes, and (14) wide variation among individuals and groups in the acceptance of MUS-E and IGE.[48]

Problems encountered by four schools during the implementation of the multiunit configuration was the focus of a descriptive study reported by Packard, and conducted by a four member CASEA research team in Wisconsin during 1972.[49] There were two major problems faced by the four multiunit schools: increased work demands and task environment criticism. These two problems, conceptually related to incorporation and standardization, emanated from ending implementation efforts prematurely and from responding to task environment criticisms. Exhaustion, boredom, personnel turnover, lack of R & D Center help after the first year, and rigidity in the MUS-E configuration were related to premature implementation closure. Fear of making mistakes and guilt over changing the traditional system, when coupled with external criticisms, resulted in standardization, i.e., all units adopting the same procedural characteristics. Packard concluded,

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[47] The four minimal conditions for satisfactory status as a multiunit school are: (1) multiaged student groups, (2) active Instructional Improvement Committee, (3) fully unitized school, and (4) instructional programing in one subject area according to the IGE model.

[48] Ironside, Nationwide Installation of the Multiunit/IGE Model, op.cit., pp. 14-18.

[49] John S. Packard, "Changing to a Multiunit School," in Contrasts in the Process of Planned Change of the Schools Instructional Organization, by W.W. Charters, Jr., et. al. (Eugene Oregon: The Center for Advanced Study of Educational Administration, 1973), pp. 108-133. The members of the research team were: Richard O. Carlson, Harry F. Wolcott, Robert D. Everhart, and John S. Packard.

> . . . there was little evidence to indicate that problems had been solved by the application of special techniques, logic, manipulation or by systematic treatment. Moreover, although most problems received some attention by schools, there was little evidence to show that many had been solved.[50]

The assumptions, theoretical basis, operational description, and summaries of research which have been presented concerning the R and D Center's implementation strategy provide an understanding and appreciation of the complexity of the process of diffusing the organizational innovation MUS-E. Such an understanding, when coupled with the need for facilitating the translation of educational organizational theory and research into viable educational programs and organizational configurations, will facilitate the comprehension and evaluation of the four theories of change to be presented, the theoretical framework to be proposed, the concepts to be analyzed, and the questions to be answered.

Review of Related Literature

Change theory, broadly conceived, provided the basis for the derivation of the theoretical framework for this research and the identification of the concepts to be analyzed. In this section four theories of change will be explicated and components of the theories, essential to the study, will be discussed. The theoretical framework and the concepts pivotal to the study, follow the explication and the discussion of the theories of change.

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[50] *Ibid.*, pp. 129-30.

Theories of Change

Although generalizations about change have been produced and typologies constructed, there is no systematically drawn theory of social change which encompasses the diversity of perspectives and concepts currently found in education.[51] That "it is premature to do more than wish for a general model, let alone a general theory of change and changing;"[52] that "it is too early for a general theory of organizational change;"[53] and that currently there is an "inadequacy of a conceptual framework allowing accumulation and synthesis of knowledge concerning educational change"[54] are limitations that should be noted prior to (1) describing change theory according to four perspectives, (2) reviewing the related research dealing with the perspectives, and (3) evaluating the theories with respect to the focus and objectives of the study.

Social Interaction Theory of Change.--The first perspective to be described focuses on the individual and his perception of an innovation according to five classifications—(1) awareness of an innovation which may create a need for the innovation, (2) interest in the innovation which results in actively seeking information concerning its utility, (3) evaluation of the innovation by judging its efficacy vis-a-vis the present status of the system, (4) trial of the innovation which involves implementation on a small scale, and (5) adoption of the innovation which results in continued use.[55] The social interaction between the potential adopter and his reference group is the major source of communication concerning the innovation. The emphasis is placed on the binominal effect that adopters of innovations have on those who have not yet adopted. However, Rogers pointed out:

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[51] Matthew B. Miles, "Innovation in Education: Some Generalizations," in Innovation in Education, op. cit., p. 631.

[52] William A. McClelland, The Process of Effecting Change (Alexandria, Va.: Human Resources Research Office, George Washington University, 1968), p. 15.

[53] J. J. O'Connell, Managing Organizational Innovation (London: Tawistock Publications, 1966) cited in The Process of Effecting Change, op. cit., p. 14.

[54] Harry S. Broudy, "Criteria for the Theoretical Adequacy of Conceptual Framework of Planned Educational Change" (Urbana, Illinois: University of Illinois. n.d.), ERIC Resume.

> The interaction effect begins to level off after half of the individuals in a social system have adopted because each new member finds it increasingly difficult to tell the new idea to a peer who has not yet adopted.[56]

The result of the social interaction effect, the familiar S-curve, may be due to the pressure for group conformity. The unit of analysis, the individual, and the channels of communication between and among individuals are the primary focus. A social interaction perspective assumes that a research product has been created, developed, and partially diffused. It is at the diffusion juncture that the social interaction theory of change concentrates by delineating the stages prior to the decisionto accept or reject an innovation.

The initial research responsible for the social interaction approach emanated from the field of rural sociology and the study of the adoption of new agricultural products by farmers. The classic investigation by Ryan and Gross[57] on the adoption of hybrid seed corn lead to a proliferation of comparable studies and typologies of adoption stages.[58] However, the five stages delineated by Rogers have not been held sacrosanct as witnessed by the following four studies and by Roger's subdequent revision of the stages.

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[55] Everett M. Rogers, Diffusion of Innovations (New York: The Free Press of Glencoe, Inc., 1962), p. 81.

[56] Ibid., p. 155.

Hassinger[59] found that awareness of an innovation was preceeded by a felt need within individual; Schramm[60] found that adoption took place in some instances prior to the information-seeking and evaluation stages; Beal, Rogers and Bohlen[61] found that adoption had taken place among some farmers without a trial stage; and Sanders[62] found that adoption was not always isomorphic with the initial innovation. Partially in response to these studies, Rogers revised the original five stages of the social interaction model to (1) knowledge of the innovation, (2) persuasion leading to forming an attitude about the innovation, (3) decision about adopting or rejecting the innovation, and (4) confirmation from peers that the decision was a good one.[63] Although the original stages have been revised, the essential feature of the social interaction approach is the perception of the sources of information about an innovation. Enlarging upon the potential effects of various sources of information, five empirical and descriptive studies, one of which dealt with education, will be summarized. Personal versus impersonal sources of information and influence are key distinctions in the social interaction process. Katz[64] noted that mass media serves an informational function whereas personal contacts serve a legitimation function. Sequentially, impersonal sources were found to be more important at the awareness and information seeking stages than at the evaluation stage.[65] However, Havelock pointed out, ". . . if the receiver is forced to obtain information from a source which he regards as unreliable or hostile to his interests, he may reject the information and the innovation."[66] In addition to the effects of the sources of information upon the adoption decision, researchers have found that information flows through multifarious channels and is mediated by opinion leaders, who, in turn, influence followers.[67] However, followers may initially be influenced by information and then turn to opinion leaders for direction. This process of interpersonal exchanges may multiply to a point where it can no longer be controlled. It may become irreversible given the binomial effect of social interaction within social structures. "In fact, after an innovation is adopted by 10 to 20 per cent of an audience, it may be impossible to halt its further spread."[68]

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[57] Bryce Ryan and Neal C. Gross "The Diffusion of Hybrid Seed Corn in Two Iowa Communities," Rural Sociology, VIII (March, 1943), pp. 15-24.

[58] cf. Herbert F. Lionberger, Adoption of New Ideas and Practices: A Summary of the Research Dealing with the Acceptance of Technological Change in Agriculture with Implication for Action in Facilitating such Change (Ames, Iowa. Iowa State University Press, 1960), George M. Beal, Everett M. Rogers, and Joe M. Bohlen, "Validity of the Concept of Stages in the Adoption Process," Rural Sociology, XXII (June, 1957), pp. 166-168., James S. Coleman, Elihu Katz, and Herbert Menzel, Medical Innovation: A Diffusion Study (New York: Bobbs-Merrill, 1966).

[59] Edward Hassinger, "Stages in the Adoption Process," Rural Sociology, XXIV (March, 1959), pp. 52-53.

[60] Wilbur Schramm, Mass Media and Natural Development: The Role of Information in Developing Countries (Stanford, California: Stanford University Press and Paris: UNESCO, 1964).

[61] G. M. Beal, E. M. Rogers, and J. M. Bollen, op. cit., pp. 166-168.

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[62] Irwin T. Sanders, "The Stages of a Community Controversy: The Case of Flouridation," Journal of Social Issues, XVII (Winter, 1961), pp. 55-56.

[63] Everett M. Rogers, and F. Floyd Shoemaker, Communication of Innovations: A Cross-Cultural Approach (New York: The Free Press, 1971), p.103.

[64] Elihu Katz, "The Social Itinerary of Technical Change: Two Studies on the Diffusion of Innovation," Human Organization, XX (summer, 1961), pp. 70-82.

[65] E. Rogers, and F. Shoemaker, Communication of Innovations, op. cit., Chapter 8.

The preceding discusiion of the social interaction theory of change, its assumptions, its research origins, and its salient characteristics provides a basis for the explication of two empirical studies which utilized a social interaction theoretical framework. LaMar[69] focused upon the effect of inservice education on the progress of teachers as they moved through Rogers' five social interaction stages. He found that the stages were not distinctly perceived by teachers and that there were cross-stage reasons given for rejection of the innovation.

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[66] Robert Havelock, Planning for Innovation through Dissemination and Utilization of Knowledge (Ann Arbor, Michigan: Center for Research on Utilization of Scientific Knowledge, Institute for Social Research, The University of Michigan, 1971), pp. 10-37.

[67] Elihu Katz, "The Two-Step Flow of Communication: An Up-to-Date Report on an Hypothesis," Public Opinion Quarterly, XXI (spring, 1957),p. 61.

[68] E. M. Rogers, Diffusion of Innovations, op. cit., p. 219.

[69] Ronald V. LaMar, "In-Service Education Needs Related to the Diffusion of an Innovation" (unpublished Ed.D. dissertation, University of California, Berkeley, 1966).

LaMar warned that future research using the five stages as categories for rejection would probably not be fruitful. Carlson,[70] having focused on the adoption of innovations among school systems, illustrated the potency of social position and status on the direction of communication flow. The social interaction among superintendents adopting innovations was found to be a function of high status and social network involvement which resulted in other superintendents perceiving them as opinion leaders. Carlson's study highlighted the importance of social structure, interpersonal interaction, and the flow of communication.

The emphasis of the social interaction theory of change implies that initial awareness of new ideas and products is not self-motivated but rather originates from opinion leaders inextricably entwined within the social network. Consequently, there is minimal attention given to individuals who initiate searches for new ideas and products in order to fulfill pressing needs. The theory of change which does focus on the deviation between what exists and what is desired is the problem solver theory of change.

Problem Solver Theory of Change--As opposed to the social interaction theory of change which portrays the potential user of an innovation as a recipient of social network influence, the problem solver theory of change perceives the user of an innovation as a client to be helped in a collaborative setting. This second change perspective will be summarized, its assumptions and characteristics discussed, and its utility will be illustrated by the review of three empirical and case studies using the problem solver theory of change.

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[70] Richard O. Carlson, Adoption of Educational Innovation (Eugene, Oregon: The Center for Advanced Study of Educational Administration, 1965), pp. 6-27.

The seven stages of the problem solver theory of change emanated from Lewin's delineation of the process of change (1) unfreezing the client system in order to realize a problem exists and change is needed, (2) moving the client system in order to implement the change, and (3) freezing the client system in order to firmly establish the change.[71] A basis for understanding the problem solver theory will be provided by juxtaposing Lewin's three stages on the seven problem solver stages proposed by Lippitt, Watson, and Westley.[72]

The unfreezing of the client system was expanded by Lippitt, Watson, and Westley to two stages (1) developing a need for change, and (2) establishing a change relationship. In order to develop a need for change the client progresses through problem awareness, desire for change, and desire for external help. The client centered desire for externally based assistance to solve the identified problem leads to the second stage of establishing a change relationship with an outside source. This collaborative relationship is considered crucial:

> The success or failure of almost any change project depends heavily upon the quality and the workability of the relationship between the change agent and the client system.[73]

Lippitt, Watson, and Westley, having proceeded from the unfreezing of the system, which included problem awareness and collaboration with an externally based change agent, then enlarged upon the moving stage of Lewin to encompass (1) diagnosing the problem, (2) exmaining alternative goals and establishing plans of action, and (3) transforming plans into change efforts. The diagnosis stage requires information about the problem from which interpretations may be formulated. However, interpretations offered by the external change agent may be rejected by the client in an atmosphere of hostility or the client may be overwhelmed by the complexity of the problem and become stagnated in a fit of frustration.[74] The examination of alternatives and the formulation of plans logically follows the diagnosis stage. The client may pilot test the plan in order to minimize the fear of failure. The actual implementation of the plan, the transforming of plans into change efforts, ". . . is the keystone of the whole change process."[75] Active feedback of the results of the change minimize premature discontinuance at this stage.

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[71] Kurt Lewin, "Group Decision and Social Change," in Readings in Social Psychology, ed. by G.E. Swanson (New York: Henry Holt and Co.,1952), pp. 459-73.

[72] Ronald Lippitt, Jeanne Watson, and Bruce Westley, The Dynamics of Planned Change (New York: Harcourt, Brace and Co., Inc., 1958).

[73] Ibid., pp. 135-36.

The freezing of the client system and the change was incorporated into the last two stages of the problem solver theory: (1) generalizing and stabilizing the change, and (2) achieving a terminal relationship. The change will be stabilized if it provides rewards for the client system and if it is supported by structural changes. In addition, the spread of the change to subsets within the system also militates against rejection. From a general systems theory perspective, Lippitt, Watson and Westley noted, ". . . many systems possess an inherent momentum which tends to perpetuate a change once it has attained a certain state of equilibrium."[76] The final stage, terminating the external change agent relationship, presupposes minimal client-agent dependency. Coping strategies and new skills required to maintain the change must be developed within the client system.

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[74] Ibid., p. 137.

[75] Ibid., p. 137.

[76] Ibid., p. 141.

The seven problem solver stages which have been delineated and described furnish a conceptual scheme for perceiving, analyzing, and planning the change process. The change process described by Lippitt, Watson, and Westley depends upon a number of critical factors. Initially, the client must be self-motivated in order to facilitate the mutual relationship with the change agent. Without self-motivation the client cannot successfully progress through the logically interrelated stages of the problem solver theory. However, the source of the motivation may emanate from a change agent. Miles and Lake[77] described a self-renewal strategy, developed for the New York Region Cooperative Project for Educational Development (COPED), which placed the change agent in the position of initiating awareness and developing within the client system a strategy for planned change. The purpose of the COPED strategy centered upon the creation of change agent teams "to formulate, apply, and evaluate and disseminate some variations of a basic strategy of planned change in collaboration with several school systems."[78] Although the emphasis was on preparing the school to solve problems, the COPED strategy was initiated by external change agents. A second critical factor is the diagnosis stage which must be balanced between the extremes of prematurely adopting solutions without first explicating the problem on the one hand and establishing debilitating committees which deter action on the other.[79] A third critical factor is the need for perceiving combinations of the seven stages as interdependent. Thelen[80] proposed that the action stages of the process of change are iterative and move in a cyclical pattern as opposed to a simplistic linear progression. A fourth critical feature of the problem solver theory is the consideration of the present capability of the client and client system to redefine and learn new roles and to restructure the formal organization to accommodate and facilitate the new roles. Winn[81] noted that lack of training in the use of new programs has been one factor in the minimal institutionalization of educational innovations. Although Lippitt, Watson, and Westley did not explicate a separate stage of evaluation, they did stress the need for feedback during the implementation stage. However, feedback in the form of evaluation may be considered as a fifth critical factor in the problem solver approach in that evaluation results may introduce stress into the client system which in turn may be counteracted by ignoring the evaluation.[82]

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[77] Matthew B. Miles, and Dale Lake, "Self-Renewal in School Systems: A Strategy for Planned Change," in Concepts for Social Change, ed. by G. Watson (Washington, D.C.: NTL Institute for Applied Behavioral Science, 1967), pp. 81-88.

[78] *Ibid.*, p. 81.

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[79] Goodwin Watson, Social Psychology: Issues and Insights (Philadelphia, Pennsylvania: Lippincott, 1966), p. 543.

[80] Herbert A. Thelen, "Concepts for Collaborative Action-Inquiry," in Concepts for Social Change, op. cit., pp. 37-46.

[81] Ira J. Winn, "Educational Planning and the System: Myth and Reality" Comparative Education Review, XIII (October, 1969), pp. 343-50.

[82] Carol H. Weiss, "Utilization of Evaluation: Toward Comparative Study," (paper presented at the American Sociological Association, Miami Beach, September, 1966, cited in R. Havelock, Planning for Innovation, op. cit., X, p. 85.

The preceding outline of the problem solver theory of change and its critical factors will be followed by a review of three empirical and case studies. Maguire[83] related the seven stages of the problem solver theory of change to a planned change project conducted by Research for Better Schools, a regional educational laboratory. Maguire concluded that (1) the seven stages provided a useful scheme for analyzing the change project, (2) the probability of the project's success would have been heightened if all the stages had been followed, (3) the political concatenations associated with the project had a disproportionate influence on its directions, and (4) the project did not achieve the objective of improving schools' change capability. At the school level, Smith[84] found that change agent intervention strategy, characteristic of the problem solver and organizational development approaches, lacked sufficient emphasis on (1) clarifying the innovation, (2) increasing motivation, and (3) facilitating the development of internal capability for establishing new roles, procedures, and goals associated with the innovation. Smith's study is of particular significance in that it compared, over time, two schools, one accepting the multiunit structure and the other rejecting the structure. In addition, the organizational development and problem solver perspectives of Smith's case study introduced the question of the efficacy of internally versus externally based change agents. Mackenzie, a proponent of the problem solver approach, after reviewing thirty change studies, concluded that "both internal and external participants initiated changes,...however external participants appear to have been the dominant initiators...."[85] The third study reviewed focused upon the planned change process within one urban school. Although the Lippitt, Watson, and Westley perspective was not explicitly used, the problems encountered and the recommendations explicated by the researchers were related to the problem solver approach. Gross, Giacquinta, and Berstein found that the lack of identification of problems and the failure to establish feedback mechanisms were major causes for the unsuccessful implementation of the change.[86] Problem identification and feedback mechanisms were previously noted as critical factors in the problem solver approach.

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[83] Louis M. Maguire, "A Comparison of a Planned Change Effort of a Regional Educational Laboeatory to the Lippitt-Watson-Westley Model" (unpublished Ed.D. dissertation, Temple University, 1970).

[84] Mary A. Smith, "A Comparison of Two Elementary Schools Involved in a Major Organizational Change: Or You Win a Few, You Lose a Few" (unpublished Ph.D. dissertation, University of Oregon, 1972).

The seven stages delineated by Lippitt, Watson, and Westley have received broad based attention and proponents within education. However, the third change theory, research, development, and diffusion, provides a macro perspective of change from an interorganizational standpoint and consequently follows the more specific theories of social interaction and problem solving.

Research, Development, and Diffusion Theory of Change.--The third theory of change to be presented--research, development, and diffusion--will be delineated according to its four stages, discussed according to its assumptions and critical stages, and reviewed according to a number of empirical and case studies. The research, development, and diffusion (RD&D) perspective considers the receiver of new ideas and practices as essentially passive and it differs from the social interaction perspective in that the change process is viewed from an earlier point in time, i.e., at the research stage. Instead of focusing upon client needs, as is done in the problem solver approach, the RD&D perspective emphasizes the predetermined solution to problems, and it centers upon closing the gap between theory and practice. Concomitantly, a macro perspective overarches the four stages of (1) research which has as its basic objective the advancement of knowledge, (2) development which is directed at identifying operating problems and formulating solutions to those problems, (3) diffusion which is directed at the creation of awareness about new developments and the provision for their assessment, and (4) adoption which has as its basic objective the installment of a development.[87] There are a number of critical processes and assumptions within the four stages of the RD&D theory of change. These issues and assumptions will be identified and discussed vis-a-vis subsequent research and comparable change conceptualizations.

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[85] Gordon N. Mackenzie, "Curricular Change: Participants, Power, and Processes," in Innovation in Education, op. cit., p. 424.

[86] Neal C. Gross, Joseph B. Giacquinta, and Marilyn Berstein, Implementing Organizational Innovations: A Sociological Analysis of Planned Educational Change (New York: Basic Books, Inc.,1971), p. 194.

A typology of the research stage includes depicting, relating, conceptualizing, and testing without concern for practical application. Guba asserted that the researcher "needs to be free from pressures for immediate payoff."[88] The research stage logically precedes the development stage where problems are identified, and solutions are invented, packaged, and field tested.[89] Guba stressed the importance of maintaining a distinction between research, the discovery of new ideas, and development, the solution to problems. In addressing the developmental stage, Guba stated "it is this activity, and not research, which is at the heart of change, for while research may make change possible, it is development that actually produces an innovation that may be adopted."[90]

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[87] Egon G. Guba, "Development, Diffusion and Evaluation," in Knowledge Production and Utilization in Educational Administration, op. cit., pp.42-43.

Miles and Brickell grouped research and development under one heading, design, in order to emphasize subsequent stages in a RD&D typology. Miles stated that under design the innovation is invented, discovered, and produced by research and development.[91] In addition, Brickell emphasized that "design is the translation of what is known about learning into programs for teaching,"[92] and he emphasized that developers should be aware of the needs and problems of local schools in order to design relevant innovations. However, Heathers[93] stressed that task analysis precedes development and construction of innovations. Consequently, one may manipulate the emphasis given to the research and development stages of the RD&D approach according to the perceived criticalness of the stages. The emphasis on fulfilling local educational needs through the development of innovations, although related to the problem solver approach, is a critical issue within the RD&D continuum. Practitioners may perceive researchers as being unconcerned vis-a-vis local problems and consequently the degree of emphasis given need based development may have significant effects in terms of local perceptions of the innovation. Fleming commented on the research-practitioner polarization by noting that practitioners perceive researchers as "engaged in a program to achieve his own objectives, and to be taking the client into account only in order to manipulate him."[94]

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[88] Egon G. Guba, Development, Diffusion and Evaluation (Bloomington, Indiana: National Institute for the Study of Educational Change, 1967), p. 8.

[89] E.G. Guba, "Development, Diffusion and Evaluation," in Knowledge Production and Utilization in Educational Adminstration, op. cit., pp. 45-46.

[90] E.G. Guba, "The Change Continuum and its Relation to the Illinois Plan for Program Development for Gifted Children" (paper delivered to a conference on educational change, Urbana, Illinois, March 1966), p. 12, cited in Havelock, Planning for Innovation, op. cit., X, 41.

[91] M.B. Miles, "Educational Innovation: The Nature of the Problem," in Innovation in Education, op. cit., p. 19.

[92] Henry M. Brickell, "State Organization for Educational Change: A Case Study and Proposal," in Innovation in Education, op. cit., p. 498.

The diffusion and adoption stages of the RD&D model will be discussed with attention to be given to the critical issues and assumptions. Guba's typology of the diffusion stage, telling, showing, helping, involving, training, and intervening, is directed toward "building awareness and understanding of an innovation and causing practitioners to consider its features with a view to possible application."[95] Brickell further described multiple dissemination activities as being aimed at creating awareness, arousing interest, demonstrating and making materials available, and providing training and continuing support.[96] Additional elaboration on the diffusion stage by Guba resulted in focusing on three critical issues, the explication of problems the innovation is designed to ameliorate, the creation of demonstration centers in order to increase credibility and provide the practitioner an opportunity to determine whether the solution fits his problem, and the training of training staffs.[97] The first of these critical issues was noted by Heathers as the need for task analysis.[98] The second issue, increasing credibility,is related not only to Fleming's[99] previously noted observation but also to Lippitt's comment:

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[93] Glen Heathers, "Influencing Change at the Elementary Level," in Perspectives on Educational Change, ed. by R. I. Miller (New York: Appleton-Century-Crofts, 1966), pp. 21-53.

[94] W. G. Fleming, "Rational Strategies for Educational Change, " in Emerging Strategies for Educational Change, op. cit., p. 28.

> There is a conspicuous lack of trust and respect for centers of of knowledge production as a relevant resource for the upgrading of practice.[100]

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[95] E. G. Guba, "Development, Diffusion and Evaluation," in Knowledge Production and Utilization, op. cit., p. 49.

[96] H. M. Brickell, "The Local School System and Change," in Perspectives on Educational Change, op. cit., p. 99.

[97] E. G. Guba, A Model of Change for Instructional Development (Bloomington, Indiana: National Institute for the Study of Educational Change, 1968), pp. 29-31.

[98] G. Heathers, "Influencing Change at the Elementary Level," op. cit.,p.38.

[99] W. G. Flemming, "Rational Strategies for Educational Change," op. cit., p. 28.

[100] Ronald Lippitt, "A Comparative Analysis of the Research Utilization Process" (excerpts from a symposium at the annual meeting of the AERA, Chicago, Illinois, February 18, 1966), p. 17.

With respect to the third need of training, training staffs, Lippitt noted,

> . . . in education the successful dissemination of new practices at a level of reasonably good quality requires much better inservice training than in other fields. But the fact is that the educational system is conspicuously lacking in the network of manpower resources needed to reeducate teachers.[101]

The significance of learning new roles and behaviors and its relations to the RD&D approach vis-a-vis the educational researcher was addressed by Martin who found that practitioners did not perceive the role of the researcher as distinct from the role of the problem solver.[102] This apparent blurring of distinctions is exacerbated by the mutual disregard of researchers and practitioners: the former labeling practitioners as shortsighted, and the latter labeling researchers as theoreticians.[103] A final perspective of the critical need for training was presented by Pinney who stated that in order to achieve successful dissemination, educational development organizations must educate the gatekeepers and decision makers of local schools.[104] Consequently, the critical issue of training within the diffusion stage of the RD&D approach is multifaceted: training training staffs, changing the roles of teachers, and educating decision makers. The training issue, however, is inexorably entwined with the fourth stage of the RD&D approach, adoption. This last stage will be described according to a critical issue, and it will be followed by a review of a change program using the RD&D approach, two empirical studies focusing on the RD&D approach and the major oversights of the approach.

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[101] Ibid., p. 16.

[102] Margaret R. Martin, "The researcher's Role in the Diffusion of an Innovation: A Comparative Study," (paper presented at the National Seminar for Adult Education Research, Toronto, February 9-11, 1969), p. 11.

[103] Daniel L. Stufflebeam, Catalog of Educational Changes in Ohio Public Schools (Columbus, Ohio: College of Education, Ohio State University, 1966).

[104] Robert H. Pinney, "Research and Development: The Reduction of Uncertainty," (paper presented at the annual meeting of the AERA, Los Angeles, California, February, 1961), p. 8.

The fourth stage, adoption, was described by Guba as including trial, installation, and institutionalization in order "to shape and install a problem solution or invention within a particular local setting."[105] The trial component of the adoption stage assumes that local variations may obviate the advantages of the innovation, the installation component assumes that modifying, training, equipping, and organizing are ineluctable prerequisites of institutionalization, and the institutionalization component assumes that assimilation and acceptance will follow over time.[106] The adoption stage of the RD&D approach places initiative on external systems which, according to Miles,[107] are responsible for encouraging and supporting the target system throughout the adoption stage. It is the degree of external intervention, involvement, and support that is a critical issue and consequently the topic to be discussed below.

Brickell stated that the adopting system, as it progresses toward the implementation and institutionalization of an innovation must be supported by outside enabling activity,[108] and elaborate help must be given to teachers.[109] The emphasis of the research, development and diffusion theory of change upon the processes for translating research into practice on a broad level will be illustrated through the summarization of a planned change program and two empirical studies.

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[105] E. G. Guba, "Development, Diffusion and Evaluation," in Knowledge Production and Utilization, op. cit., p. 49.

[106] Ibid., pp. 49-50.

[107] M. B. Miles, "Educational Innovation: The Nature of the Problem," in Innovation in Education, op. cit., p. 20.

Research for Better Schools, a regional laboratory, conducted a wide-scale, carefully controlled expansion effort of an innovation. The effort was geared to the monitoring of staff improvement, efficacy of training materials, and effectiveness of the innovation. School participation was initially controlled vis-a-vis the criteria of seriousness and ability.[110] The RBS strategy essentially followed a RD&D approach but it differed in that it stressed a high degree of control during the adoption stage. Control of the adoption process and integrity of the innovation were major concerns of RBS and consequently highlight a critical issue within the RD&D paradigm.

The first empirical study focused on the dissemination of multimedia techniques by an indepth approach with eight schools versus a broad approach with forty schools. The indepth approach involved evaluation, extensive in-service training, and follow-up consultation whereas the broad approach involved multimedia demonstrations, workshops, and visitations. It was found that the two approaches had comparable positive effects.[111] The result of no difference between treatments, although limited by the degree of differential potency of the two strategies, verifies the need for external support but it does not resolve the issue of degree of support.

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[108] H. M. Brickell, "The Local School System and Change," in Perspectives on Educational Change, op. cit., p. 99.

[109] H. M. Brickell, "State Organization for Educational Change," in Innovations in Education, op. cit., p. 505.

[110] James W. Becker, "Incorporating the Products of Educational Development into Practice," Journal of Research and Development in Education, III (Winter 1970), pp. 93-98.

Brickell's RD&D paradigm was investigated in the second empirical study. Demonstrations and re-education sessions were used to disseminate an instructional innovation which in turn was monitored in order to determine the degree of implementation. Byron found that (1) the content of the innovation was learned by 75 percent of the teachers and introduced in varying degrees by 95 percent of the teachers, (2) the classroom practices prescribed by the innovation and the actual operationalization of the practices were separated by a noticeable gap, vis., 75 percent failed to follow a second criterion, (3) inservice sessions were effective in teaching the new practices, and (4) 88 percent of the teachers insisted that six months of actual experience with the innovation were necessary in order to develop convictions of its worth.[112] Byron noted that the degree of imlementation was not only affected by the external support but also by the internal support given by the superintendents and principals. In addition, he concluded that there was a need for externally based follow-up after the product implementation phase.

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[111] Leroy A. Green, *Educational Technology Dissemination Project: A Project in Selected Methods of Disseminating Information Regarding Educational Media by State Departments of Education* (Denver, Colorado: Colorado State Department of Education, 1966).

[112] Rev. Joseph P. Byron, "An Analysis of Some of the Consequences of an Effort to Spread a Curriculum Innovation" (unpublished Ed.D dissertation, Columbia University, 1969).

The studies which have been summarized, the critical issues which have been discussed, and the characteristics of the RD&D approach which have been described provide a basis for a review of three overarching criticisms and apparent weaknesses of the research, development, and diffusion theory of change.

A major criticism of the RD&D approach centers upon the linear nature of the four stages. Carter noted that the sequence from research, to development, to utilization has not been a smooth sequence or an orderly progression but rather a simultaneous combination of stages.[113] Kreitlow and MacNeil likewise criticized the research, development and diffusion theory for its lack of accounting for initiative introduced at multiple points throughout the four stage sequence.[114] Related to the criticisms of the linear nature of the RD&D approach is the question of the nature of the target system. A study which focused on the essence of the RD&D model, "successfully influencing a passive consumer to accept the fruits of science through a dissemination process,"[115] found that a social interaction perspective provided a useful scheme for analyzing and understanding the change process.

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[113] Launor F. Carter, From Research to Development to Use (Santa Monica, California: System Development Corporation, 1966), pp. 4-5.

[114] Burton W. Kreitlow and Teresa MacNeil, An Evaluation of the Model for Educational Improvement as an Analytical Tool for Describing the Change Process, Theoretical Paper No. 18 (Madison, Wisconsin: Wisconsin Research and Development Center for Cognitive Learning, March 1969), p. 5.

[115] Ernest R. House, Thomas Kerins, and Joe M. Steele, "A Test of the Research and Development Model of Change," Educational Administration Quarterly, VII (Winter, 1972), p. 4.

> As with any model, the Research and Devlopment model is not entirely wrong; it simply attracts attention to the wrong variables. Concentrating on engineering the invention lulls us into seeing the consumer as tabula rasa. He is not. Acting on it prompts us to establish change agents to feed products to practitioners. The products do not go down well.[116]

In addition to the criticisms on the sequence of the stages and the nature of the adopter, the RD&D approach appears to lack concern for the nature of the innovation itself. Camaren found that the diffusion of an innovation was, in part, a function of the attributes of the innovation.[117] Rogers has stressed the importance of the perceived relative advantage, compatibility, complexity, trialability, and observability of innovations,[118] and Clinton and House empirically substantiated Rogers' five categories vis-a-vis the adoption of eighteen instructional innovations.[119] Three researchers found that innovations which (1) are relevant to insturctional needs, can be installed gradually and duplicated easily, and have built in evaluation,[120]

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[116] Ibid., p. 12.

[117] Reuben J. Camaren, "Innovation as a Factor Influencing the Diffusion and Adoption Process" (unpublished Ed.D. dissertation, University of California-Berkeley, 1966).

[118] E. M. Rogers and F. F. Shoemaker, Communications of Innovations, op. cit., pp. 167-68.

[119] Alfred Clinton and John H. House, "Attributes on Innovations as Factors in Diffusion" (paper presented at AERA meeting, Minneapolis, Minnesota, March,1970), pp. 9-24.

[120] Ronald Lippitt, "The Teacher as Innovator, Seeker, and Sharer of New Practices," in Perspectives on Educational Change, op. cit., p. 310.

(2) are better than existing program, popular, and image building,[121] and (3) are rewarding and least risky,[122] have a significant positive impact on adoption. Even though there a great number of studies dealing with the impact of the characteristics of innovations on the success of diffusion, the issue is not resolved. Time and resources were considered by Bhola[123] as the prime variables in the diffusion of innovations.

> A review of literature in the area of innovation research and theory led us to the position that the characteristics of an innovation were not primary in determining the probability of the diffusion of an innovation. The more important factor was the availability of resources of skills, personnel, material and influence with both innovators and adopters. If all the needed resources were available and deployed, the adoption of any innovation could be achieved for an individual, group, organization or culture, in due course of time.[124]

Linear sequence, passive audience, and the lack of attention given to the question of effects of attributes of innovations represent three issues that have surfaced with respect to the research, development and diffusion theory of change. Two of the issues, linear sequence and passive target system will be addressed by the linkage theory change.

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[121] Louis J. Rubin, "Installing an Innovation," in Educational Change: The Reality and the Promise, ed. by Richard R. Goulet (New York: Citation Press, 1968), pp. 155-56.

[122] Frederick C. Fliegel and Joseph E. Kivlin, "Attributes of Innovations as Factors in Diffusion," The American Journal of Sociology, LXXXII (November, 1966, p. 248.

[123] Harbans S. Bhola, The Configurational Theory of Innovation Diffusion (Columbus, Ohio: School of Education, Ohio State University, 1965).

[124] Ibid., p. 7.

Linkage Theory of Change.--The fourth theory of change to be presented, having been recently developed and explicated, has received very little empirical verification or descriptive consideration. Havelock constructed a typology of change which centers around the two-way interaction process between the users of research and the sources of research. Collaboration is assumed to facilitate relevant and effective exchanges and to foster trust. Concomitantly, the linkage theory of change emanates from the RD&D approach in that a broad perspective and a knowledge production-to-utilization continuum are both present. The seven stages constituting the linkage approach were described by Havelock as (1) linkage which signifies the degree of interpersonal connection and mutual communicative relations among two or more parties, (2) structure which signifies the systematic organization and coordination of elements within the research-utilization continuum, (3) openness which signifies readiness to give and to receive new information, (4) capacity which includes factors related to a broad range of human, fiscal, and politcal resources, (5) reward which represents positive reinforcement accruing to members of the system involved in the research-utilization continuum, (6) proximity which signifies physical accessibility, and (7) synergy which represents an active redundancy of forces, purposefully orchestrated and directed at the adoption of an innovation.[125] Prior to an elaboration of the salient factors and characteristics of the linkage theory of change, its significance in relation to the need for a theory of change which incorporates organizational concepts, will be noted. Carlson, in summarizing educational diffusion research, lamented the fact "that even though the research has taken the school systems as the adopting unit, very limited attention has been paid to concepts related to organizational theory."[126] Concomitantly, the significance of the linkage theory is, in part, centered upon the introduction of organizational concepts within the seven stage paradigm. However, in order to understand the eclectic nature of the linkage typology, reference will be made to the social interaction, problem solver, and research, development and diffusion theories of change.

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[125] R. G. Havelock, Planning for Innovation, op. cit., XI, pp. 21-29.

The social interaction theory of change, which emphasized the importance of the social relations network, the potential adopter within the network, the potency of informal personal contact, and the effect of group norms, has been integrated with the linkage typology. The factors of linkage, reward, proximity, and synergy are related in that (1) linkage corresponds to interconnections within the social relations network, (2) reward corresponds to the reinforcing effect of meeting group norms, (3) proximity correspondes to informal contact, and (4) synergy is related to the overall repetition of social contact within the social system network.

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[126] Richard O. Carlson, "Summary and Critique of Educational Diffusion Research," in Research Implications for Educational Diffusion, major papers presented at the national conference on Diffusion of Educational Ideas (East Lansing, Michigan: Michigan Department of Education, 1968), p. 16.

The problem solver theory of change is also related to factors within the linkage typology. The problem solver approach emphasized the mutual collaboration between change agents and practitioners, the awareness by the practitioner of problems to be solved, and the capability of the practitioner to solve recurring problems. These three factors correspond to the linkage factors of openness, willingness to enter into collaborative relationships with external agents, reward, the sense of accomplishment resulting from solving a problem and capacity, the resources within and the capability of the user system.

The research, development and diffusion theory of change, which in part stressed the need for an orderly transition from research to use, is also related to two factors within the linkage typology. The factor of linkage addresses the need for connecting the producers of new knowledge with systems that need and can use the knowledge, and the factor of structure stresses the need for a coordinated and systematic approach to the process of knowledge utilization.

The linkage theory of change, although receiving minimal empirical or descriptive verification, has had attention focused on the major factor of linkage. The importance of the linkage factor has been attested to and argued by sociologists and professors of education.

Chase, in addressing the gap between theory and practice related,

> The building of organizational links to facilitate the flow of knowledge into educational practice is going forward slowly but persistently. Education not only suffers from inadequate

> knowledge-producing resources, but also from the lack of closely linked agencies for moving knowledge through essential processes and phases to widespread and effective use.[127]

Chase has also maintained that in order to predict the direction and amount of change in education it is necessary to understand the processes of interorganizational interaction.[128] Eastabrook, focusing on the objective of improving educational practice, noted that there was a need for "developing and maintaining bridging or linking mechanisms which will join the existing organizations to alternative modes."[129] The need to focus on interorganizational communication, rather than the predominant focus on interpersonal communication, was a major concern of Runkel who stated that in order to transmit innovations "adequate communication among organizations where new patterns of action within one organization must be supported by other organizations with which the first is interdependent"[130] must be established. Characteristics of problems related to institutions and linking roles required for effective interorganizational knowledge flow have been delineated[131] and described.[132] However, one major problem, identified by Halpin and elaborated by Havelock, is the role of linkage agents. Halpin has asserted that the lack of middlemen to function between scientists and practitioners disqualifies education as a profession.[133] In addition to the paucity of middlemen, Halpin noted that they are treated as "subprofessional lackeys."

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[127] Francis S. Chase, "R & D in the Remodeling of Education," Phi Delta Kappan, LI (February, 1970), p. 302.

[128] Francis S. Chase, "School Change in Perspective," in The Changing American School, ed. by John I. Goodlad (Chicago, Ill.: National Society for the Study of Education, Sixty Fifth Yearbook, Part II, 1966), p. 281.

[129] Glenn Eastabrook, "Institutionalizing Bridging Mechanisms: Legitimizing Educational Alternatives" (paper presented at the Annual Meeting of the Learned Societies, McGill University, Montreal, n.d.), pp. 18-19. (Mimeographed.)

[130] Philip J. Runkel, Linking Organizations to Maintain Organizational Development and Transmit Innovation (Eugene, Oregon: Center for Advanced Study of Educational Administration, 1970), p. 3.

> I can only writhe as I watch the fatuous and condescending attitude toward prospective middlemen. Even the advocates of the middlemen plan imply that the middleman should serve as a type of editorial assistant, at a status level only slightly above that of the average secretary and certainly below that of the research technician.[134]

The marginal position of middlemen and concomitantly, linkage agents, has also been addressed by Havelock and Benne, who noted that, in addition to the problem of impermeable system boundaries, the linkage agent frequently experiences extreme role overload.[135] In expanding the overload problem, Havelock delineated the linkage agent's role as having too much information to handle, too many people from whom to retrieve it, too many stages to process it through, and too many people to whom to give it.[136] This dysfunctional concatenation explicated by Havelock was followed by the recommendation that role overload

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[131] Richard S. Farr, Knowledge Linkers and the Flow of Educational Information (Stanford, California: Institute for Communication Research, ERIC Clearing House on Educational Media and Technology, 1969).

[132] Francis S. Chase, "The Laboratories: 1970 and Beyond," Journal of Research and Development in Education, III (Winter, 1970), pp. 104-20.

[133] Andrew W. Halpin, "Problems in the Use of Communication Media in the Dissemination and Implementation of Educational Research," in Dissemination and Implementation, op. cit., p. 195.

[134] Ibid., p. 198

[135] Ronald G. Havelock and Kenneth D. Benne, "An Exploratory Study of Knowledge Utilization," in Concepts for Social Change, op. cit., p. 54.

> highlights the need for a drastic division of labor and a clear definition of sub-function which can only be accomplished through institutionalization. It also highlights the need for the linker to focus his activities in projects, time-limited and objective-limited sequences.[137]

Exacerbating the overload problem is the problem of marginality. Havelock traced the sources of linkage agent marginality to (1) the in-between nature of the role, and (2) the recency of the role. In addressing the in-between nature of the linkage agent role (interreference-group conflict), Havelock stated:

> The linker is necessarily and by definition an in-betweener. He takes from the research world, but he is not clearly part of that world, and he gives to the practice world while not being clearly a part of that world either.[138]

The recency of the linkage agent role compounds marginality by creating suspicion and interrole conflict among role incumbents. Concomitantly, "marginality of the role means stress for the role holder. Put this together with the stress which results from overload and we have a completely untenable position."[139] However, the problems associated with the linkage role have received concrete attention in terms of explicit and comprehensive training programs.[140] In addition, the potential problems of the linkage concept has not deterred the number and scope of linkage proponents.

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[136] R. Havelock, Planning for Innovation, op. cit., VII, p. 34.

[137] Ibid., VII, p. 34.

[138] Ibid., VII, p. 37.

[139] Ibid., VII, p. 38.

In addition to educational researchers, sociologists have asserted the need for linkage mechanisms among community organizations and social systems, and within organizations. Litwak, in criticizing the research, development and diffusion approach as being office-based, suggested that three types of linkages be used according to the social distance of the target system (1) community-based linkages for antagonistic clients, (2) office-based for friendly clients, and (3) balance-based for clients of average social distance.[141] Although taking a political orientation to change, Loomis noted the impact of comprehensive linkages.

> Systematic linkage is the essential process in directed change by which a change-agent organization...attempts to improve the practices of target groups...[142]

Focusing on the need for developing linking mechanisms within large organizations, Lynton argued that linkages must be established between subsystems in order to effectively cope with environmental stress and institutionalize innovations.[143] A theoretical treatment of the linkage concept, although prior to Havelock's typology, incorporated linkage as an independent variable of innovation diffusion. Bhola, in creating a configurational theory of change, noted that innovators and potential adopters must be linked through either a communication or interaction pattern in order for diffusion to take place. The relationship between initiator and target system, the configuration, the linkage within the configuration, the environment surrounding the configuration, and the resources available to the innovator and adopter were depicted as a linear function of diffusion.[144] In addition, Bhola attempted to verify the theoretical paradigm through empirical data from previous change studies, expert judgment, and use of the configurational theory in explaining actual diffusion events.

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[140] Bela H. Bonathy, The Educational Information Consultant: Skills in Disseminating Educational Information (Far West Laboratory for Educational Research and Development, December 31, 1972).

[141] Eugene Litwak, "An Approach to Linkage in Grass Roots Community Organizations," in Strategies of Community Organizations, ed. by Fred M. Cox, John L. Eslich, Jack Rothman, and John E. Tropman (Itasca, Ill.: F. E. Peacock Publishers, Inc. 1970), p. 137.

[142] Charles P. Loomis, "Social Change and Social Systems," in Sociological Theory, Values, and Socio-cultural Change, ed. by E.A. Tiryakian (New York: Free Press of Glencoe, 1963), p. 202.

Although conceptual discussions of the efficacy of linkages have been inadequately balanced with empirical and descriptive studies, four studies, one explicitly using the Havelock linkage typology, will be presented prior to the delineation of the theoretical framework.

O'Connell used Havelock's linkage typology to construct alternative diffusion strategies for an instructional innovation. Ratings by a panel composed of administrators and teachers involved with the innovation resulted in 90 per cent of the strategies being rated as appropriate for the diffusion of the innovation.[145] An explicit focus on interorganizational relationships from a political perspective was taken by Pohland, who investigated the structures used to implement the innovation of computer assisted instruction. Pohland found that (1) interorganizational theory was inadequate, (2) conflict was a function of organizational interdependence, (3) goals prescribed by organizations were meaningless vis-a-vis actual interorganizational relationships, (4) mediating structures were necessary to adjudicate disputes, (5) types of interorganizational arrangements were a function of the agreement in values, (6) federally funded projects were subject to political realities, and (7) dysfunctional conflict was associated with interorganizational structures funded with precarious federal monies.[146]

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[143] Ralf P. Lynton, "Linking an Innovative Subsystem into the System," Administrative Science Quarterly, XIV (September, 1969), pp. 398-416.

[144] H. A. Bhola, The Configurational Theory of Innovation Diffusion, op. cit., pp. 7-37.

A study focusing on the interorganizational dynamics of change using teams of change agents linked to universities was conducted by Corwin. Sociological intervention strategies were compared in order to determine their relative effectiveness. Corwin found that change was enhanced when (1) the outside organization had greater power than the host organization, (2) the interdependence between the organizations was high, and (3) the boundary roles of the organizations were staffed by cosmopolitan, liberal, and professionally competent members. Corwin also noted that political coalitions developed within host organizations between the change advocates and traditionalists.[147] The implicit linkages between universities and schools and the use of university based change agents are related to the linkage factor described by Havelock. In addition, the conditions associated with successful linkage, found by Corwin, are related to the strategy of change used by Colgate University.

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[145] Richard H. O'Connell, "A Diffusion Model for the COLAMDA Project in Colorado" (unpublished Ed.D. dissertation, University of Denver, 1971).

[146] Paul A. Pohland, "An Interorganizational Analysis of an Innovative Educational Program" (unpublished Ph.D. dissertation, University of Washington, 1970).

Kettering and Colgate University used a linkage strategy of change which attempted to diffuse innovation within schools in a "ripple" as opposed to a "restructuring" approach. Linkages were established with individual teachers through course work, internships and workshops. It was found that teachers' knowledge and attitude, and administrators' influence were related to the actual use of the innovation by the teachers selected as linkage agents.[148] The use of teachers to introduce and spread innovation within schools may be considered a variation of Havelock's linkage approach in that the resource system, through initiating linkages with teachers, was organizationally removed from the user system.

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[147] Ronald G. Corwin, "Strategies for Organizational Innovation: An Empirical Comparison," American Sociological Review, XXXVII (August, 1972), p. 451.

[148] Office of Educational Research, Colgate University, Colgate University, Kettering-Colgate Project: A Study of Innovation and Change in Education (Hamilton, New York: Office of Educational Research, Colgate University, 1971), pp. 48-49.

The linkage theory of change advanced by Havelock suffers from a lack of explicit empirical and descriptive verification. His synthesis of change theories does not stand by itself as an adequate predictor of interorganizational dynamics; however, the linkage typology constructed by Havelock incorporates concepts from general and social systems theories. Consequently, by explicating the more mature theories of general systems and social systems and integrating them with change theory, a coherent and potent perspective of the diffusion process may be achieved. A delineation of general systems and social systems theories and an integration of selected linkage theory factors will be presented as the basis for the theoretical framework of the study.

Theoretical Framework

A summary of the essential concepts and relationships within the general systems and social systems theories will be presented and followed by a selective presentation of factors within the theories of change previously explicated. Conceptual integration of related general systems, social systems, and change theory factors will be the focus of the theoretical framework.

General Systems Theory.--General systems theory provides, through its conceptually broad and flexible perspective, a macroview of the dynamic interdependence of intersystem relationships. Katz and Kahn delineated nine properties of general systems theory (1) inputs, (2) through-puts, (3) outputs, (4) energic chain of events, (5)negative entropy, (6) negative feedback, (7) steady state, (8) differentiation, and (9) equifinality.[149] Although the general systems perspective has not been adequately operationalized,[150] and has been criticized as being exacting and expensive,[151] it has, however, provided a structure for understanding intersystem dynamics.[152] The external focus of the general systems perspective, the explication of the input, throughput, and output characteristics, and the dynamic effects of steady state forces are the essential properties of general systems to be summarized below.

The effects of the environment, uncertain forces external to the organization, constitutes the major concern of general systems theory. With respect to the overarching need of organizations for survival, the environment plays a critical role in influencing the organization and consequently "...the central problem of complex organization is one of coping with uncertainty."[153] By viewing organizations as systems within a variable environment, and by viewing agencies external to a particular organization as part of that environment, one of the essential contributions of general systems theory is provided. Emanating from the environmental impact concern are the mechanisms which organizations employ to maintain a steady state and to minimize dysfunctions attributable to environmental stress. These mechanisms, striving to achieve a constant external environment, produce changes within the organization as the environment changes.[154] The concept of system boundaries, with degrees of permeability and the need for internal equilibrium (steady state), serves to elaborate the characteristics of organization-environment interaction by emphasizing the distinction between external and internal dynamics. For example, the placement of system boundaries is controlled in part by the need of the organizations to minimize crucial environmental contingencies.[155]

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[149] Daniel Katz and Robert Kahn, The Social Psychology of Organizations (New York: Wiley and Sons, Inc., 1966), pp. 17-26.

[150] Richard H. Hall, Organizations: Structure and Process (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1972), p. 26.

[151] Amitai Etzioni, Modern Organizations (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1964), p.17.

[152] William M. Evan, "The Organization-Set," in Approaches to Organizational Design, ed. by James D. Thompson (Pittsburgh: University of Pittsburgh Press, 1966), pp. 173-191; Burton R. Clark, "Interorganizational Patterns in Education," Administrative Science Quarterly, X (September, 1965), pp. 224-37; Sol Levine and Paul E. White, "Exchange as a Conceptual Framework for the Study of Interorganizational Relationships," Administrative Science Quarterly, V (March, 1961), pp. 583-601.

[153] James D. Thompson, Organizations in Action (New York: McGraw-Hill Book Co., 1967), p. 13.; cf. Michel Crozier, The Bureaucratic Phenomenon (Chicago: The University of Chicago Press, 1964).

Within the perspective of organizations surrounded by an environment, are the properties of input, through-put, and output which comprise the basic processes of general systems. Inputs are imported by the organization from the environment and as such these inputs are potential sources of change.

> The set of conditions which we have called changed inputs from without are the critical factors in the significant modification of organizations.[156]

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[154] D. Katz and R. Kahn, Social Psychology of Organizations, op. cit., p. 26.

[155] J. Thompson, Organizations in Action, op. cit., p. 50.

[156] D. Katz and R. Kahn, Social Psychology of Organizations, op. cit., p. 448.

Through-puts, the transformation and reorganization of inputs, provides a basis for differentiating different types of systems and it provides the means for relating inputs with outputs. The exportation of products into the environment, outputs, is a critical property of general systems in that system effectiveness is determined in terms of "the degree that the organization provided maximal return to the society for the energic demands which it made...."[157] Within education, general systems theory has been the basis for a series of propositions concerning change within school systems. Griffiths posited a series of propositions based on general systems theory:

> --The major impetus for change in organizations if from the outside.
> --The degree and duration of change is directly proportional to the intensity of the stimulus from the suprasystem.
> --Change in an organization is more probable if the successor to the chief administrator is from outside the organization than if he is from the inside of the organization.
> --When change in an organization does occur, it will tend to occur from the top down, not from the bottom up.
> --The number of innovations expected is inversely proportional to the tenure of the chief administrator.[158]

General systems theory, an all-inclusive perspective on systems, has been summarized, its essential properties have been explained, and research based on the general systems approach has been identified. Griffiths' series of propositions, having been posited from a general systems framework, provided an operational summary of general systems theory as applied to educational administration. Complementing general systems theory is social systems theory which will be presented and discussed with emphasis being given to institutional relationships and properties.

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[157] Ibid., p. 166.

[158] Daniel E. Griffiths, "The Nature and Meaning of Theory," in Behavioral Science and Educational Administration, ed. by Daniel E. Griffiths, Sixty-Third Yearbook of the National Society for the Study of Education, Part II (Chicago: The University of Chicago Press, 1964), pp. 117-18.

Social Systems Theory.--The Guba and Getzels[159] model of social behavior, which describes administration as a social process, is composed of nomothetic and idiographic dimensions. The nomothetic dimension, to be stressed here, addressed the normative or institutional aspects of social behavior, while the idiographic dimension addressed the individual elements of social behavior.[160] The Guba and Getzels mode of social behavior, applied to educational administration by Getzels, Lipham, and Campbell,[161] explicates the dynamic interaction within and among the normative and personal dimensions of behavior. The normative dimension includes the factors of institution, role, and expectations. These three factors constitute the sociological level of analysis within the social systems paradigm and as such they will be delineated and discussed in view of the organizational perspective taken herein. The institutional element has been characterized as purposive, peopled, structured, normative, and sanction-bearing. The purposiveness of institutions was illustrated by Getzels, Lipham, and Campbell in terms of the goals institutions are established to achieve.

> The purposes of the institution may be evaluated against the needs and goals of the social system, and the institutional practices may, in turn, be evaluated against the purposes of the institution.[162]

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[159] Jacob W. Getzels and Egon G. Guba, "Social Behavior and Adminstrative Process," School Review, LXV (Winter, 1957), pp. 423-41.

[160] Jacob W. Getzels, "Administration as a Social Process," in Administrative Theory in Education, ed. by Andrew W. Halpin (Toronto, Ontario: The MacMillan Co., 1970), pp. 152-54.

[161] Jacob W. Getzels, James W. Lipham, and Ronald F. Campbell, Educational Administration as a Social Process (New York: Harper and Row, Pub., 1968.

[162] Ibid., p. 57.

The peopled component of institutions was based on the premise that human agents are required to carry out the purposes and functions of institutions. The structure component was described as constituting the organization element that interrelates component parts of the institution in order to achieve purposes. Given the purposes of the institution, tasks are specified and organized into roles which are fulfilled by individuals.

> The issue of whether the real person does or does not fit the role in terms of the structure and goals of the institution poses one of the critical dilemmas of administration.[163]

The normative component of institutions revolves around the tasks that have been prescribed into roles and organized to achieve institutional goals. The roles, which serve as norms for behavior, are considered institutional norms. The sanction-bearing component of institutions introduces the positive or negative means by which the institution insures compliance with the institutional norms. Conceptually interdependent with the institutional element is the role element.

The role is the most important analytic unit of the institution.[164] The characteristics of roles are (1) represent positions within an institution, (2) defined in terms of role expectations which are in turn institutional givens, (3) constituted along a continuum from required to prohibited, (4) related to other roles so that they are complementary, and (5) function within either diffuse or specific scopes of interaction.[165]

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[163] _Ibid._, p. 58.

[164] _Ibid._, p. 59.

[165] _Ibid._, pp. 60-63.

The expectations, inextricably entwined with roles, define the duties and rights of role incumbents, which are, in turn, predetermined by the purpose and structure of the institution. The complementary and interdependent nature of roles is related to the structure of institutions.

> This quality of complementariness fuses two or more roles into a coherent, interactive unit and makes it possible for us to conceive of an institution or social system as having a characteristic structure.[166]

The actualization of role expectations lies within either functionally diffuse, limitless rights and obligations, or functionally specific, restricted rights and obligations vis-a-vis technical competence and institutional status. The third element of the nomothetic dimension, expectations, completes the delineation of the elements within the normative axis of the social systems mode.

Expectations, the analytic concept of roles, are prescriptions that delineate and explicate "what a person should and should not do under various circumstances as the incumbent of a particular role in a social system."[167] Each element within the normative dimension of the social systems model is conceptually interdependent. The social system may be viewed in terms of the analytic unit of institutions; institutions may be described by the component roles, and roles by the component expectations. The effective fulfillment of expectations contributes to the achievement of institutional goal behavior, the output of the social system. Consequently, the nomothetic axis of the social systems model may be represented as an interdependent linear progression. The dimension is represented schematically in Figure 3.

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[166] Ibid., p. 63.

[167] Ibid., p. 64.

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Social System ⟶ Institution ⟶ Role ⟶
Expectation ⟶ Institutional Goal Behavior

Fig. 3.--The Normative Dimension of the Social Systems Model[168]

The structure component and the role element of the normative dimension will be discussed again within the context of the concepts of the study. An explication of the concepts and factors of change theory will be presented and followed by the concepts to be analyzed in the study.

Change Theory.--Although four perspectives of change have been presented: social interaction; problem solver; research, development and diffusion; and linkage, an extraction of change concepts and factors critical for the study will be delineated and discussed as one basis for the presentation of the concepts which will be analyzed. Havelock's linkage perspective provides the conceptual basis for the theory of change which underlies the dynamics of interorganizational relationships in the diffusion of an innovation, and as such it constitutes the primary source of the change theory to be presented.

Havelock's typology of dissemination and utilization factors may be viewed as a synthesis of the three change perspectives previously delineated. However, the research, development, and diffusion theory of change provides a useful framework from which to illustrate the incorporation of the social interaction and problem solver perspectives. The second RD&D stage of development reflects the problem-solver approach in that an innovation is developed to solve a problem or need within user system. The third stage of the RD&D approach, diffusion, is related, in part, to the social interaction approach in that social networks are considered one means for the diffusion of new practices and ideas. The adoption stage of the RD&D approach is also related to the adoption stage of the social interaction theory of change. Two steps incorporated in the social interaction paradigm, trial and then adoption, are similar to the RD&D steps of trial, installation, adoption, and then institutionalization.

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[168] Ibid., p. 65

Although components of the RD&D approach incorporate important factors within the social interaction and problem solver approaches, there is a need for an explicit synthesis of the change theories. The linkage model developed by Havelock, although presented with a paucity of empirical or descriptive research, purports to bring the three theories of change together by emphasizing resource and user system interaction. In order to achieve effective interaction the user and resource systems must be aware of and simulate each other's problem solving behavior.[169] The appreciation of user system needs and problem solving patterns by the resource system and the appreciation of resource system invention, solution-formulation, and evaluation processes by the user system provides a basis for collaborative interaction. Consequently, collaborative interaction leads to relationships of trust and mutual perceptions which in turn leads to the development of channels for the rapid, effective, and efficient transfer of information.[170] This objective of the linkage model is essential to the objective of the RD&D theory, the diminishing of the gap between theory and practice through the diffusion of research. Another similarity with the RD&D approach, made explicit by Havelock, is the need for a division of labor, coordination, and collaboration throughout the interacting social systems. A suprasystem which supports, facilitates, and coordinates linkage activities is called for in the Havelock model. Finally, there are five features of the research, development, and diffusion perspective which are conceptually incorporated within the linkage model (1) dissemination and utilization of knowledge is a rational process, (2) planning on a large scale is required to coordinate and actualize the relationships between research and eventual adoption, (3) separation of roles and functions among complex organizations is required, (4) evaluation in order to assure that the target audience is defined and, concomitantly, innovations are effectively delivered, and(5) realization of the need for extensive development prior to diffusion.[171]

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[169] R. Havelock, Planning for Innovation, op. cit., XI, p. 4.

The linkage model of change explicates essential features of the social interaction, problem solver, and especially the RD&D theories of change. The factors of linkage, structure, and capability, although only three of the seven presented by Havelock, appear, a priori, to be promising independent variables effecting the diffusion of an innovation.

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[170] Ibid., XI, p. 4.

[171] Ibid., XI, p. 5.

The factor of linkage may be viewed as being comprised of three elements, the type, the mode, and the frequency of system interaction. Three major types of linkage are represented by Havelock as conveying, consulting, and training. The conveyor merely transfers innovations from producer to user; the consultant assists users in the identification of problems and retrieval of innovations which will solve the problems, and the trainer instills within the user an understanding of the innovation prior to adoption.[172] The type and mode of linkage reflects the means by which the linkage is carried out. The linkage model calls for effective orchestration of a variety of means for carrying out the types of linkage and a categorization of linkage modes yields written media, oral presentations, films, recordings, demonstrations, dyadic exchanges, and large and small group exchanges.[173] The frequency of the mode of linkage, perceived as a component of the linkage factor, was delineated by Havelock as the separate factor of synergy, the redundancy of transmissions. However, by integrating the frequency of the mode of linkage within the linkage factor, a more coherent and conceptually stable independent variable is provided. In addition to the linkage factor, which represents intersystem connectedness and relationships, are the factors of structure and capability.

Havelock, in defining structure as the systematic organization and coordination of the elements leading to diffusion, implicitly introduces the nomothetic dimension of social systems theory. Concomitantly, structure will be conceived of as incorporating not only institutional organization but also role definitions, and expectation clarity.

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[172] _Ibid._, VII, p. 4.

[173] _Ibid._, VII.

Capability, labeled as the capacity factor in Havelock's linkage typology, may be conceptually incorporated within the linkage and structure variables as representing the overall resources available for the systematic diffusion of innovations. Not only are the resources of time explicated by Havelock; he also introduces the psychological component of past experiences which either reinforce innovative behavior or tend to minimize such behavior.

The objective of the linkage model is to explicate the factors required for the effective utilization of knowledge. Utilization of knowledge may also be viewed as diffusion of an innovation in that new practices and ideas are adopted by a user system. Consequently the model of change presented here builds from Havelock's typology of factors and also builds from the normative dimension of social systems theory. Figure 4 represents schematically the model of change to be used in the study.

Since organizations constitute the unit of analysis, general systems theory was discussed in order to provide a structure for analyzing intersystem interactions. Concomitantly, the factor of linkage may be viewed as an interorganizational factor whereas structure and capability are intraorganizational factors. These three factors interact to effect the diffusion of the innovation under study--the multiunit elementary school organizational configuration. However, there is a critical lack of explication of the dependent variable, diffusion, within the Havelock scheme. The implicit treatment of the effect, diffusion, renders

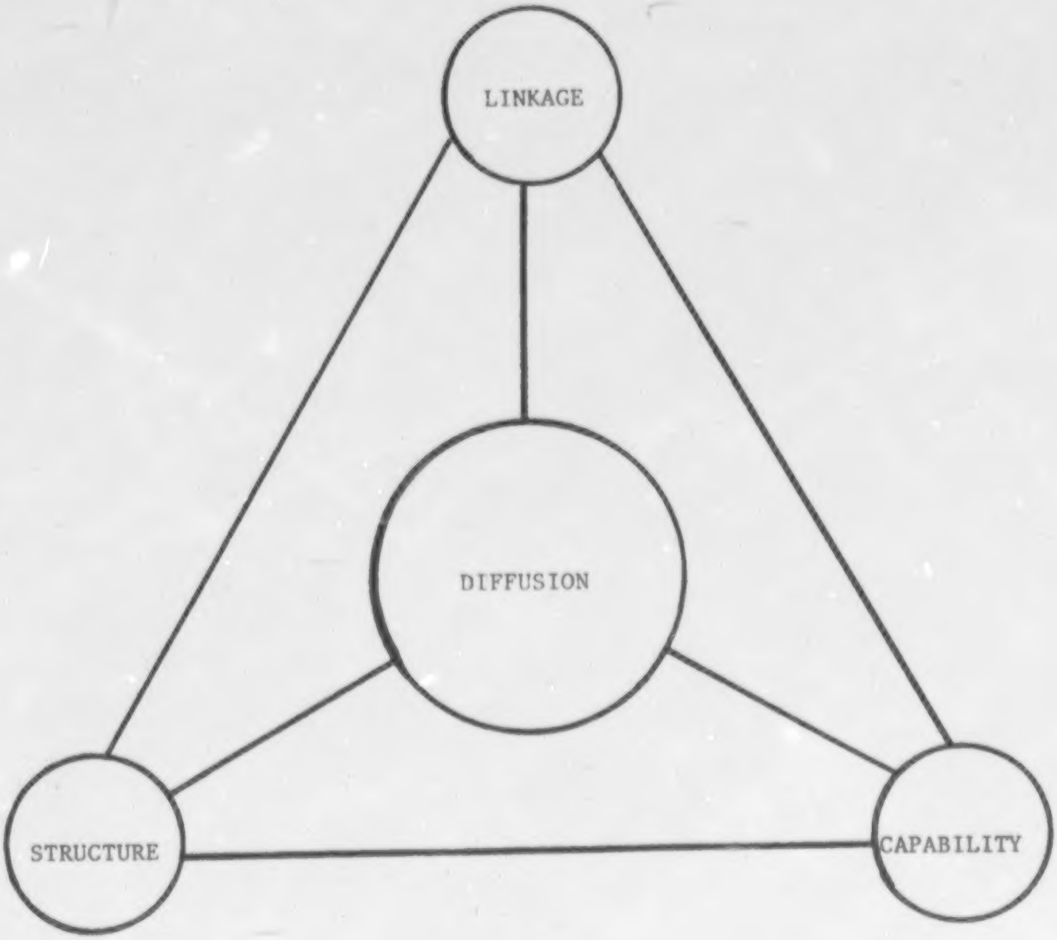
LINKAGE
DIFFUSION
STRUCTURE
CAPABILITY

Fig. 4--Linkage Model of Change

Havelock's conceptualization a typology; there is no explication of relationship between independent and dependent factors. Consequently, the dependent variable, diffusion, will be presented prior to the delineation of concepts to be analyzed and the questions to be answered.

Havelock, although assuming the concept of utilization within his typology of factors, discussed the alternative outcomes of the innovation sequence as (1) discontinuance of the innovation after initial adoption, (2) rejection of the innovation with subsequent adoption, (3) adoption of the innovation in an amended form, (4) adoption of the innovation in its pure form, and (5) rejection of the innovation.[174] However, the diffusion of an innovation, if examined at a fixed point of time, may be categorized as having been diffused in its original form, not diffused, or diffused in an adapted form. Consequently, a discussion of diffusion will be presented within these three possibilities.

Diffusion of an innovation in its original form has been addressed by a number of researchers. Bhola posited that diffusion has been achieved:

> ...When the innovation is voluntarily sought as a need or value by a configuration and when the configuration itself can provide or has access to the skills and resources needed for adoption by a new member of the configuration not previously related to the innovation.[175]

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[174] Ibid., pp. 70-74.

[175] H. Bhola, The Configurational Theory of Innovation Diffusion, op. cit., p. 10.

A more parsimonious definition of the result of a diffusion effort was presented by Rogers. Initially Rogers defined adoption, the effect of diffusion, as the decision to continue full-scale use of an innovation.[176] However, Rogers refined his definition to "a decision to make full use of a new idea as the best course of action available."[177] Guba described the last element of RD&D process as the assimilation of an invention into the ongoing program.[178] The permanent establishment and maintenance of an innovation was considered by Pellegrin to be the final effect of diffusion.[179] In summary, Katz and Levin presented a process definition of diffusion which has been given substantial attention:

> The (1) acceptance, (2) over time, (3) of some specific item--an idea or practice , (4) by individuals, groups or other adopting units, linked (5) in specific channels of communication, (6) to a social structure, and (7) to a given system of values, or culture.[180]

An innovation which has not been successfully diffused may be considered as being totally rejected by the user system, the inverse of acceptance, adoption, or institutionalization. However, consideration of an innovation adopted in an amended form presents a more complex issue. Havelock, in addressing the issue of adoption of innovations , noted that, when an innovation requires a great deal of skill or training, or is associated with high costs, then the user system will tend to amend the innovation. Havelock viewed the adaptation process as being comparable to the problem solver approach of individual need based solutions to problems.[181] However, ignorance, lack of understanding, or ambivalence within the user system may cause dysfunctional adaptations to be made. Havelock asserted that "the effect of compromise may be to eradicate the intended effect of the innovation."[182] Lippitt emphasized that significant changes in innovations were adaptations which require greater orientation to "the basic principles or conceptions involved in the practice in order to make creative adoption possible."[183] Adoption without adaptation requires a new pattern of behavior in a new social context and therefore functional adaptation assumes a higher level of mastery of the new roles learned for the original innovation. In concluding the discussion of a diffused innovation in amended form, the organizational development focus of CASEA will be noted. Charter and Pellegrin, in focusing on the barriers to innovation, noted that the assumption that schools possess unique circumstances and problems tends to encourage deviation from innovations imported from external sources. They conjectured:

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[176] E. Rogers, Diffusion of Innovations, op. cit., p. 17.

[177] E. Rogers and F. Shoemaker, Communication of Innovations, op. cit. p. 26.

[178] E. Guba, Development, Diffusion and Evaluation, op. cit., p. 50.

[179] R. Pellegrin, An Analysis of Sources and Processes of Innovations in Education, op. cit., p. 30.

[180] E. Katz and M. Levin, "Traditions of Research on the Diffusion of Innovation," op. cit., p. 240; Carlson also subscribes to the Katz and Levin definition, cf. "Summary and Critique of Educational Diffusion Research," op. cit., p. 5.

> It is conceivable that departures at will from carefully developed and tested models constitute a major factor in the notoriously high rate of failure of innovations in education.[184]

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[181] R. Havelock, Planning for Innovation, op. cit., X,p. 74.

[182] Ibid., p. 74.

[183] R. Lippitt, "The Use of Social Research to Improve Social Practice," op. cit., p. 78.

[184] W. W. Charters,Jr. and Roland J. Pellegrin, Barriers to the Innovation Process: Four Case Studies of Differentiated Staffing(Eugene, Oregon: Center for the Advanced Study of Educational Administration, 1972), pp. 6-7.

Concomitantly, the last diffusion category of amended adoption may be a harbinger of the eventual failure of diffusion. The extensive case study by Gross of an innovation implementation failure reinforces the proposition that departures from the developed characteristics of an innovation, coupled with a lack of extensive and additional training noted earlier by Lippitt, eventually results in the unsuccessful implementation of the innovation. Gross' injunction, although appearing simplistic, summarizes the issue. "Innovations introduced into schools are only proposals for change; to achieve their intended effects, they must be implemented."[185]

Consequently, the dependent variable, diffusion, may assume a variety of meanings. However, the actual implementation of an innovation and the actual effectiveness of the new roles and behavior patterns required to implement the innovation appear to be the most promising and parsimonious conceptualization of the dependent variable of diffusion.

The theoretical framework which has been presented has ranged from a broad organizational perspective to a structured view of roles and institutional behavior. A synthesis of a change typology was introduced and related to the concept of diffusion. A diffusion paradigm was presented which related the concepts of linkage, structure, and capability to the diffusion of an innovation. Following the theoretical framework of the study is a delineation of the concepts to be analyzed which, in turn, is followed by statement of the questions to be answered in this study.

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[185] N. Gross, et. al , Implementing Organizational Innovations, op. cit., p. 7.

Concepts to be Analyzed

Seven concepts will be delineated and defined prior to presenting the questions to be answered by this study. The concepts of diffusion, linkage, structure, capability, resource system, mediating system, and user system will be delineated conceptually and defined operationally.

Diffusion.--The dependent variable of diffusion is to viewed over time as a process of purposeful and directed dissemination of a research product. However, viewing diffusion as a concept at a fixed point in time and considering the objective of diffusion as the adoption of a research product, diffusion is conceptually defined as the fulfillment by the user system of the performance criteria of the research product developed by the resource system. Diffusion has taken place when the user system successfully and effectively performs the new tasks required by the research product, the innovation. Concomitantly, the new tasks require new skills, new roles, and new role expectations. The roles and role expectations must conform with the intent and operational criteria of the innovation in order to assure that the behavior of the user system is isomorphic with the behavior prescribed by the innovation. In addition, as new roles and expectations are called for by the innovation, so may new structures and forms of organization be required. These structures may be viewed as the preceding analytical unit of roles and expectations vis-a-vis the normative axis of the social systems paradigm. The operationalization of diffusion therefore depends on the performance criteria and configurations of the innovation.

To define diffusion operationally, the organizational configuration and administrative arrangement of Individually Guided Education (IGE) must be explicated in operational terms. The three major organizational components of the multiunit elementary school are (1) the instructional and research units (I & R Units), (2) the instructional improvement committee (ICC), and (3) the systemwide policy committee (SPC). Consequently, the operational definition of diffusion to be used in this study is the establishment of the I & R Units, IIC, and SPC.

Linkage.--The independent variable of linkage is conceptually viewed as representing intersystem connectedness, intersystem relationships, or intersystem interaction. From a general systems perspective, linkage is perceived as the spanning of system boundaries and the complex interactions associated with the spanning activities between and among resource, mediating and user systems. The variable of linkage is analytically divided among type, mode, and frequency dimensions. The type of linkage corresponds to the qualitative elements of the linkage process. Broadly conceived,these elements may be summarized within the categories of one-way, two-way and feedback transmissions. The mode dimension corresponds to the means by which the type of linkage is performed. The mode modifies the type and contributes to more extensive descriptions of the type categories. The frequency dimension corresponds to the rate of linkage acts and as such it contributes to the development of a structured perspective for analyzing the linkage process. The frequency of the means of linkage is in turn a qualitative modification of the type of linkage.

Linkage is operationally defined in terms of the three dimensions of type, mode, and frequency. The type of linkage corresponds to the functions of conveying, consulting, and/or training; additional linkage types are possible. The mode of linkage corresponds to the means of interaction: face-to-face, telephone, written media, and films. As with the type of linkage there are additional modes possible. The frequency dimension corresponds to the number of interactions over a period of time.

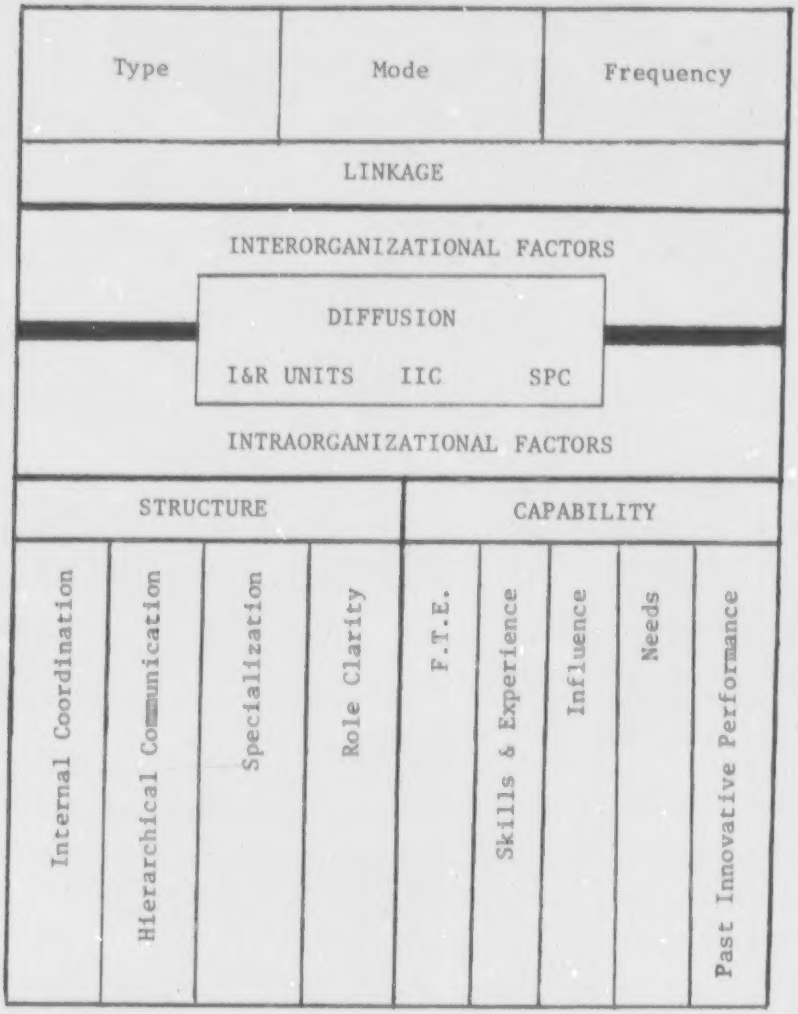
Structure.--The independent variable of structure is viewed as an intra-organizational concept. Structure within the resource, mediating, and user systems corresponds to the normative axis of the social systems model. As such, structure is viewed as an overarching variable representing coordination, control, differentiation, and role definition.

Structure is operationally defined in terms of the four dimensions of coordination, hierarchical communication (control), specialization (differentiation), and role clarity (role definition). Coordination corresponds to the relationships among interdependent roles, i. e., how closely role incumbents work together. Hierarchical communication corresponds to the nature and frequency of interaction between a role incumbent's perception of the role expectations along a continuum from implicit and vague to explicit and precise.

Capability.--The independent variable of capability is conceptually viewed as an intraorganizational factor. Capability within the resource, mediating and user systems is conceptually perceived as the resources available within each system. The resources of time, skills, influence, and history are the dimensions of capability. Conversely, the needs or deficiencies within a system are the negative manifestations of capability.

Capability is defined operationally according to the dimensions of time, skill, influence, needs, and past innovative performance (history). Time corresponds to the full-time equivalent (F.T.E.) of a role incumbent in terms of the role expectations dealing with the innovation. Skill and experience correspond to the ability of the role incumbent to perform the expectations for the role. Influence corresponds to the role incumbent's perception of power and his ability to modify issues, decisions, or plans. Needs correspond to the overall converse of capability and is operationally unspecified. Past innovative performance corresponds to the role incumbent's overall expectation that the innovation will or will not be successful based on past performance with other innovations. As such the past innovative performance measure is related to the reputation of the system as perceived by the role incumbent. Figure 5 represents schematically the conceptual and operational factors in the diffusion of an innovation.

Resource System.--Conceptually, the resource system is viewed as the source of a research product or innovation. Within a resource system the functions of research and development are carried out systematically in order to produce new knowledge. Consequently, the resource system initiates and creates new knowledge. In addition, the resource system is responsible for transferring the knowledge to those systems that can benefit from it.


Type
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STRUCTURE
CAPABILITY
Internal Coordination
Hierarchical Communication
Specialization
Role Clarity
F.T.E.
Skills & Experience
Influence
Needs
Past Innovative Performance

Fig. 5--Conceptual and Operational Factors in the Diffusion of an Innovation

Resource system is operationally defined as the Wisconsin Research and Development Center for Cognitive Learning. However, within the Wisconsin R & D Center, attention will be given to the organizational component identified as the implementation unit, which fulfills the responsibility for and the function of transferring knowledge to user systems. Chase, in his extensive case study of R & D Centers, summarized their objectives as (1) to draw upon the capital of ideas from universities, (2) to enlarge on the capital of knowledge through systematic development, (3) to link up with state departments of education and other agencies and (4) to bring about widespread installation and effective use of new educational programs by educational practitioners.[186] However, the association between R & D Centers and universities has implications for the degree of practical research products developed. Guba noted that "the university's traditional interest in new and basic knowledge militates against the more practical research that the real world of education needs."[187] The awareness that R & D Centers must perform a mediating role between the university and the practitioners of education adds to the concept of the resource system and to its operationalization, the Wisconsin R & D Center.

Mediating System.--Conceptually, the mediating system is viewed as being juxtaposed between the resource and user systems. The mediating system amplifies and supplements the knowledge transference function of the resource system. The interposition of the mediating system results in augmentation of resource system's diffusion effort and in turn facilitates the linkage between the user and resource systems.

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[186] Francis S. Chase, The National Program of Educational Laboratories (Washington: U.S. Office of Education, Bureau of Rhsearch, December 17, 1968), p. 10.

[187] E. Guba, "The Process of Educational Improvement," op. cit., p. 142.

Operationally, the mediating system corresponds to state education agencies (SEA) and teacher education institutions (TEI). SEAs have been traditionally ineffectual in disseminating and implementing research findings--which has implications for their mediating role in diffusing MUS-E.[188] However, the Wisconsin R & D Center justified the use of SEAs as mediating systems due to their fulfillment of performance criteria in the establishment of a requisite number of multiunit schools during the 1971-72 and 1972-73 school year.[189] The organizational units within the mediating systems responsible for MUS-E diffusion are the specific organizational components representing the mediating system.

User System --Conceptually, the user system represents systems that can benefit from the production of knowledge and research. User systems are the recipients of knowledge, research products, and specifically, educational innovations produced and diffused by resource and mediating systems. The target of the diffusion of innovations is the user system.

Operationally, the user system corresponds to local educational agencies (LEAs) LEAs are the recipients and adopting agents of the innovation emanating from and diffused by the Wisconsin R & D Center with mediation from state education agencies and teacher education institutions. Specifically, LEAs which have been perceived as having implemented the innovation of MUS-E represent the user system. Figure 6 represents schematically the relationships among the resource, mediating, and user systems.

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[188] David L. Clark, "The Function of the United States Office of Education and the State Departments of Education in the Dissemination and Implementation of Educational Research," in Dissemination and Implementation: Third Annual Phi Delta Kappa Symposium on Educational Research, ed. by Keith Goldhammer and Stanley Elam (Bloomington, Indiana: Phi Delta Kappa, 1962), p. 106.

[189] James E. Walter, "Justification for Utilizing State Education Agencies as the Exclusive Organizations for Implementing IGE/MUS-E and Criteria for Selecting Intermediate Agencies" (unpublished report, Wisconsin Research and Development Center for Cognitive Learning, Madison, Wisconsin, 1972), p. 2.

Questions to be Answered

Having delineated the concepts pivotal for the study, a series of questions will be listed which constitute the focus of the research. The major questions addressed in this study were:

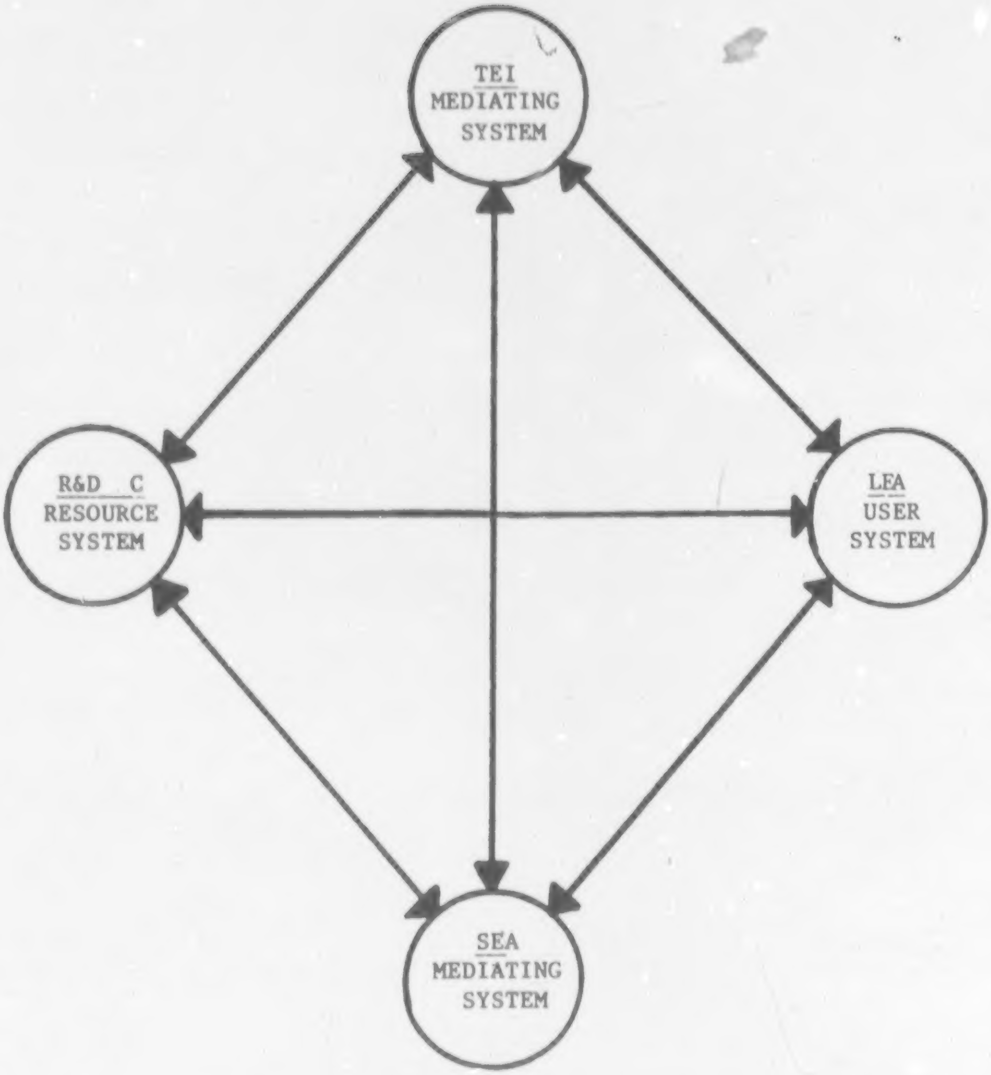
(1) What is the nature of the relationships between resource, mediating, and user systems in the diffusion of an innovation?

(2) What are the characteristics of the linkages among resource, mediating, and user systems vis-a-vis the diffusion of an innovation?

(3) What are the consequences of the variable of linkage among the resource, mediating, and user systems on the diffusion of an innovation?

(4) What are the consequences of the variable of structure within the resource, mediating, and user systems on the diffusion of an innovation?

(5) What are the consequences of the variable of capability within the resource, mediating and user systems on the diffusion of an innovation?


TEI
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LEA
USER
SYSTEM
SEA
MEDIATING
SYSTEM

Fig. 6--The Relationship Between Resource, Mediating, and User Systems in the Diffusion of an Innovation

Ancillary questions that were explored in this study were:

(1) What are the consequences of one or a combination of the three independent variables of linkage, structure, and capability, exhibiting a disproportionate degree of influence on the diffusion of an innovation?

(2) What are the consequences of one or a combination of the organizational systems exhibiting a disproportionate degree of influence on the diffusion of an innovation?

(3) Is there any one factor and any one system that has the greatest influence on the diffusion of an innovation?

These questions were explored with the objective of (1) establishing the nature of the interorganizational relationships that exist between the Wisconsin R & D Center, state education agencies, teacher training institutions, and local educational agencies, (2) relating the nature of the relationships to the diffusion of the innovation multiunit elementary school, (3) providing a reference point from which R&D Center policy formulators may refine the implementation strategy of MUS-E and other new ideas and products, i.e., narrowing the gap between research and practice, and (4) adding to the study of educational administration.

The objectives of the study were fulfilled by not only describing the interorganizational relationships that existed between the resource, mediating, and user systems to the diffusion of an innovation, but by also delineating specific measures for the measurement of user system adoption of MUS-E. The explication and delineation of the relationships between systems in the diffusion of an innovation has provided a basis for the development of a theory of innovation diffusion from an organizational perspective.

Significance of the Study

The multidisciplinary concern for closing the theory-to-practice gap, the research concern for developing a base for future empirical studies on diffusion, and the practical concern for improving the Wisconsin Research and Development Center's implementation strategy constitute the significance of the study. The progress toward aligning theoreticians and practitioners in a mutual partnership for improving the education of the individual learner is the global objective to which significance may be imputed. In addition, the development of a coherent and potent theory of innovation diffusion in education will be facilitated by a series of propositions which may subsequently be tested empirically, and the formulators of R & D Center dissemination plans will be provided with feedback concerning current and potentially effective administrative and organizational arrangements for the diffusion of research products.

The focus of the study on interorganizational relationships has subtantiated relevance vis-a-vis innovation diffusion. There is the need for assessing R & D Center strategies in order to reveal operational problems incident to system intervention.[190] In support of such an assessment are the facts that educational research has definable, interdependent, process stages directed at innovation implementation. Concomitantly,to improve implementation the process stages must be improved which, in turn,depends on an integrated research-to-practice perspective.[191] In conclusion, the linkage perspective taken herein has received emphatic support:

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[190] F. Chase, The National Program of Educational Laboratories, op. cit., p. 26.

[191] D. Clark, "The Function of USOE and State Departments of Education in the Dissemination and Implementation of Educational Research,"op. cit., p. 108.

> There is not, in my view, any acceptable alternative model for educational innovation as a means of effecting social change apart from that of the research and development institute linked with public and voluntary agencies,[192] and, as much as possible with individual practitioners.

Limitations of the Study

Specific attributes associated with the organizational innovation MUS-E, and personalistic attributes of respondents, have been omitted from the study and consequently the generalizability of the propositions are limited. In addition, the lack of consideration for the idiographic dimension of behavior constrains the transformation of the research results into a comprehensive and viable implementation strategy.

The methodological limitations inherent with a semi-structured interview schedule, the prohibitive cost of test-retest reliability data, and the lack of a mature theory of the diffusion of educational innovations may also be viewed as limiting parameters of the study. The necessarily limited sample size, especially in one state due to factors beyond the control of the researcher, is a limitation which should be noted. The procedure for selecting schools based on the nomination of knowledgable local sources introduces undeterminable sample bias, and the procedures for recording, analyzing, and forming conclusions from narrative response data, although given scrupulous attention by the researcher, may be viewed as methodological limitations which militate against replication and validity. A final limitation, also undeterminable, is the association, by respondents, of the researcher with the Wisconsin R & D Center. This association may have resulted in withheld information, and/or constrained responses.

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[192] W. Flemming, "Rational Strategies for Educational Change," in *Emerging Strategies for Educational Change*, *op. cit.*, p. 35.

Overview of the Study

An explication of the need for focusing on interorganizational linkages in the diffusion of innovation has been shown to be inextricably entwined with the problem of the deviation between research and practice. Four theories of change have been discussed, a theoretical framework has been presented, concepts pivotal to the study have been explicated, and the questions addressed by the study have been delineated and followed by the significance and limitations of the study.

Chapter II focuses on the design and methodology of the study. Attention is given to selection of respondents, instrumentation, interview techniques, codification and analysis schemes, and methodological limitations. Chapter III presents the findings by state and Chapter IV synthesizes the state findings according to the theoretical framework, the concepts previously presented and the questions to be answered. Unanticipated findings are highlighted in Chapter IV and discussed in view of the need to provide a coherent basis for the succeeding chapter. Chapter V incorporates a summary of the study, a series of propositions on the diffusion of innovations through interorganizational linkages, a discussion of the implications of the study for the Wisconsin R and D Center, state education agencies, teacher education institutions, and local education agencies, and recommendations for future research.

CHAPTER II

DESIGN OF THE STUDY

The criteria and procedures for the selection of respondents, the instrumentation designed to elicit substantive responses, the techniques used to minimize interviewer bias and maximize interviewee response, the treatment of the data, and the methodological limitations of the study are presented in the paragraphs that follow.

Selection of Respondents

Thirty-five respondents in three states were identified and asked to cooperate in an exploratory study being conducted between March and May 1973, by the researcher (see Appendix B for correspondence). The three states were identified according to the criteria that they had (1) established an implementation contract with the Wisconsin R and D Center,[1] (2) established at least one state coordiantor of IGE/MUS-E implementation, (3) established at least one teacher education institution program for training and/or assisting in IGE/MUS-E implementation, and (4) established a core of operating multiunit schools. In addition to the four objective criteria, the subjective judgment of implementation unit members was sought in order to determine which states and teacher education institutions were the most effective or most promising from an implementation strategy perspective. Three states were identified that fulfilled the criteria, one on the East coast and two in the Midwest. Within these three states, mediating and user systems were selected.

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[1] See Appendix A.

Resource System.--The implementation unit of the Wisconsin Research and Development Center constituted the unit of analysis representing the resource system. The entire implementation unit staff of five persons (excluding two staff members focusing on reading program implementation), and the former Center Director were identified and asked to participate in the study. The five staff members and the former Director were connected with MUS-E implementation activities either directly or indirectly from a planning and managerial position. Table 1 delineates the number of respondents from the resource system.

TABLE 1

NUMBER OF RESOURCE SYSTEM
RESPONDENTS BY IMPLEMENTATION EMPHASIS

Emphasis		
Direct	Indirect	Total
3	3	6

Mediating Systems.--The selection of mediating and user systems followed the selection of states. Within the three states selected for the study, the state coordinator for IGE/MUS-E implementation (associated with the state education agency), and members of a teacher education institution involved with IGE/MUS-E activities were identified. In states with more than one teacher education institution, the judgment of informed implementation unit members was sought in order to determine the most effective TEI and the most involved TEI staff. Consequently, three state coordinators of IGE/MUS-E were identified, one within each state education agency, and seven TEI members were identified, three per TEI in two states and one in a TEI in one state. A total of ten mediating system personnel were identified and asked to participate in the study. Initial queries were made by telephone, followed by correspondence,[2] and followed by a second letter one week prior to the interview delineating the objective and scope of the interview. All communication with mediating and user system members stressed that the researcher was a graduate student in the Department of Educational Administration. The primary reason for stressing the researcher's affiliation with the Department of Educational Administration was to avoid possible limitations that may have been created by affiliation with the Wisconsin R & D Center. It was considered that R & D Center affiliation could have resulted in constrained and/or withheld information concerning the relationship between the system with which the respondent was affiliated and the Wisconsin R & D Center. Table 2 illustrates the number of mediating system respondents by state and by position. However, it should be noted that the category IEA represents an intermediate educational agency representative not originally identified by the researcher. The mediating influence of a county intermediate unit was represented by a county agent and consequently the relevance of the position with respect to MUS-E implementation was considered sufficient to justify inclusion within the sample.

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[2] See Appendix B.

TABLE 2

NUMBER OF MEDIATING SYSTEM
RESPONDENTS BY STATE AND BY POSITION

	Position			
State	SEA	TEI	IEA	Total
I	1	1	0	2
II	1	3	1	5
III	1	3	0	4
TOTAL	3	7	1	11

User Systems.--Having identified mediating system respondents in each state, the researcher solicited nominations from each TEI in order to identify user systems that were considered exceptional or at least representative of multiunit schools in the state. The TEI member nominating user systems was asked to consider the following two criteria: (1) the LEA had implemented the MUS-E design, and

(2) the LEA had considerable contact with the TEI. Each TEI nominated two multiunit schools fulfilling the criteria and one TEI nominated an additional MUS-E at the request of the researcher in partial compensation for one MUS-E which was experiencing a labor dispute during the investigation. The researcher contacted each multiunit school principal by telephone to explain the purpose of the study and interviews, and to ask for his cooperation. Following the telephone contact, correspondence was forwarded outlining the nature of the study and indicating the staff members to be interviewed.[3] The principal was asked to select one unit leader and one unit teacher, in addition to himself, to be interviewed in a strictly confidential manner. However, deviations from the requested classifications were experienced. One principal selected two unit leaders, and two principals selected only one unit leader and only one unit teacher, respectively. The total number of principals, unit leaders, and unit teachers is shown in Table 3.

TABLE 3

NUMBER OF USER SYSTEM
RESPONDENTS BY STATE AND BY POSITION

	Position			
State	Principal	Unit Leader	Unit Teacher	Total
I	2	3	1	6
II	2	2	1	5
III	3	2	2	7
TOTAL	7	7	4	18

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[3] See Appendix B.

The thirty-five respondents selected and interviewed with a semi-structured interview schedule are represented below in Table 4 according to the categories of system and state.

TABLE 4

NUMBER OF RESOURCE, MEDIATING, AND USER SYSTEM RESPONDENTS BY STATE

	System			
State	Resource	Mediating	User	Total
I	6	2	6	14
II		5	5	10
III		4	7	11
TOTAL	6	11	18	35

Instrumentation

A semi-structured interview schedule was constructed in order to achieve substantive descriptive responses to the operationalized concepts of diffusion, linkage, structure, and capability. In this section rationale for using an interview approach and the criteria for the placement of items will precede the delineation of the interview questions.

Given the exploratory nature of the study and the disadvantage of a priori explication of close-ended, limited response items, a semi-structured interview approach was chosen. A close-ended questionnaire presupposes detailed knowledge of the concepts being measured, whereas a semi-structured interview assumes that specific characteristics, opinions, and facts related to the concept under investigation may be unknown to the researcher. Consequently, one criterion for using interviews, explicated by Merton, was fulfilled by this study.

> . . . one of the principal reasons for the use of interviews rather than questionnaires is to uncover a diversity of relevant responses, whether or not these have been anticipated by the inquirer.[4]

However, there are several additional advantages associated with the decision to use an interview approach as opposed to questionnaires. Hyman noted that the advantages of interviews were (1) ability to control for contextual effects of other questions on a given answer, and (2) ability to provide insight with respect to questions by probing and amplifying.[5] Johnson stated that interviews (1) facilitate control, (2) allow for observation, (3) increase motivation, and (4) militate against non-responses.[6] Gordon delineated the advantages of interviewing as (1) helps motivate respondents to supply accurate and complete information, (2) provides an opportunity to guide respondent in his interpretation of the question, (3) allows for flexibility vis-a-vis respondent's ability to respond, and

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[4] Robert K. Merton, Marjorie Fiske, and Patricia L. Kendall, The Focused Interview, (Glencoe, Ill.: The Free Press, 1965), pp. 12-13.

[5] Herbert H. Hyman, Interviewing in Social Research, (Chicago, Ill.: The University of Chicago Press, 1954), pp. 15-16.

[6] Carl-Otto Johnson, Questionnaires and Interviews, (Stockholm: The Swedish Council for Personnel Administration, 1950), pp. 26-29.

(4) provides an opportunity to evaluate validity of information by observing nonverbal manifestations of respondent's attitude.[7] Richards noted two advantages which accrue from moderately open questions (1) respondent feels his opinion is important, and (2) responses may be more valid vis-a-vis close ended questions since people tend to give yes/no answers irrespective of questions in close ended interviews.[8] The advantages of using an interview approach with semi-structured items facilitated the purpose of the study. A priori determination of all items would have militated against discovering unintended aspects, characteristics, or problems not only associated with the concepts under investigation but also with regard to related and/or tangential topics. In addition, the tendency of user systems to perceive innovation diffusion as complete when, in fact, it is only partial or amended, dictated an interview and the on-site visitation approach.

A personal interview may facilitate the development of rapport, influence the validity of responses, and affect the depth of response. The researcher developed rapport by first having an informal conversation with each respondent, which included the purpose of the research, the confidentiality of the responses, and the need for summarizing the responses during the interview. Respect for the opinion of each respondent was stressed in addition to the importance of frank and honest responses. Validity may have been influenced by the non-threatening purpose of the study and the affiliation of the researcher with an academic department. The depth of response was affected by the relaxed atmosphere of the interview--in many instances responses had to be shortened in order to maintain appointments. Richardson advised that threatening or sensitive questions be placed last and objective or interesting questions be placed first in the interview schedule.[9] Consequently, the presentation of the interview questions were isomorphic with their placement on the interview schedule. Objective items were placed first and followed by items that were considered more sensitive.[10]

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[7] Raymond L. Gordon, Interviewing: Strategy, Techniques, and Tactics, (Homewood, Ill.: The Dorsey Press, 1969), pp. 52-54.

[8] Stephen A. Richardson, Barbara S. Dohrenwend, and David Klein, Interviewing: Its Forms and Functions, (New York: Basic Books, Inc., 1965), pp. 148-52.

Diffusion.--Three items were constructed to measure the concept of diffusion, the establishment of the three hierarchical structures of MUS-E organizational configuration. The establishment of the instructional and research unit, the instructional improvement committee, and the systemwide policy committee were the three items used to measure the diffusion of the innovation MUS-E within each user system. These three diffusion items were placed first on the interview schedule since they were fairly objective. The definitions of each hierarchical level were read to the respondent in order to insure a comparable interpretation of the items among user systems. In addition to the definitions of the three hierarchical levels, tangential, enabling characteristics were used as probes, for example, unit leader released time and unit leader additional compensation.

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[9] Ibid., p. 43.

[10] See Appendix C.

Linkage.--Three items measured the linkage concept between each system. The type of linkage was measured by having the respondent describe the activities carried out with each applicable system. The mode of linkage was measured by requesting a description of how the activities were carried out, and the frequency of linkage was measured by having the respondent estimate the quantity of contact over time. Probes were used to facilitate in-depth responses by citing examples of known activities such as workshops and conferences.

Structure.--The concept of structure was represented by four items: (1) internal coordination, (2) hierarchical communication, (3) specialization, and (4) role clarity. Internal coordination was measured by asking the respondent to describe how closely he/she worked with role incumbents with interdependent expectations, e.g., unit leaders working with unit teachers. Hierarchical communication was measured by indexing the extent of superordinate communication. In addition, extent of communication with the chief executive was also asked in some instances. Specialization was measured by asking the respondent to describe any division of labor among the appropriate task group members. Role clarity was measured by having the respondent consider his/her role expectation along a continuum from structured to unstructured. A structured self perception was considered to be associated with an explicit role definition whereas an unstructured self perception was associated with an implicit or vague role definition.

Capability.--Five items measured the concept of capability: (1) time spent on MUS-E activities (F.T.E.), (2) skills and experience needed to perform role, (3) perceived influence of role, (4) perceived needs of system to effectively implement MUS-E, and (5) past innovative performance of the system. The F.T.E. measure was introduced by having the respondent estimate the percentage of time spent on MUS-E activities over a representative time period. Information concerning skills and experience needed to effectively perform the role of the respondent was sought in order to determine if the respondent perceived himself as having the requisite skills. The respondent was then asked to describe the amount of influence he/she had with respect to the implementation of MUS-E. A high self perception of influence was considered to be associated with a self perception of power to manipulate issues, decisions, or plans. By asking the respondent to delineate the needs of the system in general with regard to MUS-E implementation, the researcher was able to elicit not only the more fundamental prerequisites for innovation diffusion but also a host of unanticipated topics and problems. In addition, respondents who enumerated a long list of needs, as opposed to interviewees responding that there were no needs, were considered as having given prior attention to the objective of improving implementation. The last question asked measured the respondents' perception of the system's past innovative performance. Systems that were considered as frequent and successful innovators as opposed to those considered to be traditional and conservative were thereby identified. Innovative history of a system was considered as a possible effect on the diffusion of MUS-E.

Biographical information was recorded at the close of the interview. Information concerning the extent of education, years in present position and previous position, and future career plans were noted in addition to age, sex, and name of respondent. In a number of instances the respondent was asked to evaluate the interview and give suggestions for improving the items and/or procedures. Prior to presenting the treatment of the descriptive responses, attention will be given to interview techniques, procedures, and guidelines followed during the investigation.

Interview Techniques

A number of researchers have addressed the topic of appropriate and inappropriate interview techniques. However, prescriptions are not absolute, as asserted by Hyman.

> The purposes and conditions of social research are so various that we must be flexible in our conception of what is appropriate interviewing methodology. More than this, any model procedure must somehow compromise between the requirements of reliability and validity.[11]

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[11] H. Hyman, Interviewing in Social Research, op. cit., p. 27.

Concomitantly, Hyman's injunction, when coupled with Kornhouser and Sheatsley's observation that the more structured the interview the less effective the use of insight,[12] provided a rationale for constructing partially structured interview items which, in turn, maximized validity and insight into the characteristics and problems of innovation diffusion. Partially structured items allow for improvisation of question follow-ups and their adaption to specific response to be the providence of the interviewer.[13] However, there are a number of prescriptions and techniques that should be followed during the interview in order to facilitate valid in-depth responses. The primary prescription, noted by a number of researchers,[14] was to develop and maintain rapport, a cooperative relationship, optimum interpersonal relations, and understanding and acceptance, or conversely to overcome suspicion. In addition to the primary injunction to establish rapport, a variety of additional guidelines were followed during the interview sessions: (1) use probes when response is irrelevant and record responses and probes immediately,[15] (2) probe for behavioral evidence in order to guard against making unwarranted assumptions,[16] (3) allow enough time for interviewee to respond, be sensitive to casual remarks, explain objective of interview, and approach question from interviewee's interest,[17] (4) state sponsorship clearly in order to minimize suspicion,[18] (5) hold respondent's interest while recording by repeating responses,[19] and (6) develop extrinsic relevance by addressing respondent's needs and/or establishing perception that research results will bring about desired changes.[20] The efficacy of the guidelines was evaluated during a pilot phase of the study and the results of the pilot allowed for the inclusion of the interview responses with the main body of data.

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[12] Arthur Kornhouser and Paul B. Sheatsley, "Questionnaire Construction and Interview Procedure," in Research Methods in Social Relations, ed. by Claire Selltiz, *et al*. (New York: Holt-Rinehart and Winston, 1959), p. 586.

[13] *Ibid*., p. 549.

[14] Walter Bingham and Bruce V. Moore, How to Interview, (New York: Harper and Brothers, 4th edition, 1959), p. 12; R. Gordon, Interviewing: Strategy, Techniques, and Tactics, *op. cit*., p. 355; Robert L. Kahn and Charles F. Connell, The Dynamics of Interviewing, (New York: John Wiley and Sons, Inc., 1957), pp. 46-47; Institute for Social Research, Interviewer's Manual: Survey Research Center, (Ann Arbor, Michigan: Institute for Social Research, The University of Michigan, May 1969), III, p. 2.

Treatment of the Data

Descriptive responses, supplemented by documents and reports whenever possible, constituted the data collected for the study.

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[15] Stacy J. Adams, Interviewing Procedures, (Chapel Hill, North Carolina: The University of North Carolina Press, 1958), pp. 13-30.

[16] W. E. Beveridge, Problem Solving Interviews, (London: George Allen and Urwin, Ltd., 1968), p. 52.

[17] W. Bingham and B. Moore, How to Interview, op. cit.,pp.12-69.

[18] H. Hyman, Interviewing in Social Research, op. cit., p. 190.

[19] Institute for Social Research, Interviewer's Manual, op. cit., V. I, p. 9.

[20] R. Kahn and C. Connell, The Dynamics of Interviewing, op. cit., pp. 46-47.

Data treatment was structured according to each concept and grouped according to each state. Descriptive statistics, frequency tables, percentages, and means were used to summarize the descriptive responses. In addition, verbatim excerpts from the interviews were selected to illustrate cogent topics and increase the validity of narrative summaries.

The descriptive analysis of responses, combined with the research literature, the evaluation by organizational theory experts, and the ancillary written data collected by the researcher, served as the basis for the formulation of (1) answers to the exploratory and ancillary questions posed for the study, (2) alternative implementation strategies for R and D Center policy-makers, and (3) a series of propositions explicating the relationships operating among the four systems.

The data were initially presented according to the three states visited by the researcher. The case study approach formed the framework by which the three states and the resource, mediating, and user systems were described. Following the presentation of the data, a conceptual analysis was performed according to the four concepts of diffusion, linkage, structure and capability. The sixteen operationalized measures of the four concepts formed the basis for the conceptual analysis. The major and ancillary findings were then presented in terms of the questions originally posed for the study. The treatment of the data was concluded with the formulation of a series of propositions and the delineation of the practical and research implications of the findings.

Prior to the delineation of a number of methodological limitations of the study, it should be noted that, in addition to the successful piloting of the interview instrument for validity and functionality, an inter-rater reliability pilot was conducted by the researcher. Three graduate students analyzed the responses of four respondents in terms of the concepts underlying the study. The percent of agreement between the three raters and the researcher for the four respondents is presented in Table 5.

TABLE 5

PERCENT AGREEMENT BETWEEN THREE RATERS AND THE RESEARCHER FOR FOUR RESPONDENTS

	Respondents				
Rater	I	II	III	IV	Total
A	100%	100%	95%	95%	97%
B	100	100	81	81	90
C	100	95	100	100	98
Total	100%	98%	92%	92%	95%

Methodological Limitations

Interview protocol and data treatment constituted the two areas where a number of methodological limitations arose. Interview and response limitations have been delineated by a number of researchers. Hyman noted that (1) statements that agree with the interviewer's opinion tend to be recorded more often, and (2) the more open ended the questions, then the greater the error in recording.[21] Richardson stated that (1) respondents may feel more at ease with close ended questions, (2) recording and analyzing responses to open ended questions is more difficult, and (3) communicating meaning and structuring train of thought are more difficult in open ended interviews.[22] Three inhibitors to an effective interview outlined by Gordon were (1) competing time demands on respondents may limit their willingness, (2) respondent may have forgotten information being sought, and (3) chronological and inferential confusion may occur with respect to particular questions.[23] In addition to interview limitations, there were also limitations dealing with the treatment of the data. The case study approach militated against quantification and therefore indices of reliability, validity, and error were not applicable. The reliance upon the judgment of the researcher, although evaluated by experts of organizational theory, was nevertheless a source of bias and consequently exacerbated functional subjectivity.

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[21] H. Hyman, Interviewing in Social Research, op. cit., pp. 190-99.

[22] S. Richardson, Interviewing, op. cit., pp. 148-52.

[23] R. Gordon, Interviewing: Strategy, Techniques, and Tactics, op. cit., pp. 71-84.

CHAPTER III

PRESENTATION OF THE DATA

The three states included in this research are first described in terms of the organizational systems which impinge on the diffusion of the innovation of IGE/MUS-E. The resource system is described in terms of the substantive contact and activities carried out with the organizational systems in each of the states. The data from each state are presented by (1) describing the characteristics and activities of the resource system which dealt with the mediating and user systems, (2) describing the activities and characteristics of the mediating systems (the teacher education institution and state education agency), and (3) describing the characteristics and activities of the user systems (the local educational agencies).

State I

A brief overview of State I includes consideration of (1) the number of multiunit schools established as of the 1971-72 and 1972-73 school years, (2) the implementation contract between the Wisconsin R & D Center and the SEA, and (3) the training contract between the Wisconsin R & D Center and the TEI.

At the beginning of the 1971-72 school year, State I had twenty-three multiunit schools[1] and by the 1972-73 school year there were thirty multiunit schools in operation.[2] The SEA, in conjunction with a TEI, contracted with the Wisconsin R & D Center to implement new MUS-Es. The 1972-73 contract provided $24,000 for maintaining the twenty-three MUS-Es and a financial assistance formula was designed to reimburse the SEA for the number of new MUS-Es established between June 1, 1972, and February 1, 1973.[3] Table 6 contains a description of the financial assistance formula for reimbursing the SEA--not only in State I, but also in States II and III.

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[1] Wisconsin Research and Development Center, 1971-72 Directory of IGE/Multiunit Elementary Schools in the United States of America (Madison, WI.: Wisconsin Research and Development Center for Cognitive Learning, 1971).

TABLE 6

FINANCIAL ASSISTANCE FORMULA FOR REIMBURSING SEAs FOR IMPLEMENTING NEW MULTIUNIT SCHOOLS[4]

No. of New IGE/MUS-E Schools Established	Amount of Financial Assistance
0-14	0
15	$15,000
16	16,000
17	17,000
18	18,000
19	19,000
20-29	20,000
30-39	24,000
40 and over	28,000

The training contract between the R & D Center and the TEI reimbursed the TEI $7,500 for offering and conducting a one-week institute for fifty lead teachers.[5] Although the SEA and TEI agreements were in their second year, future contracts were in question because of national level funding constraints for the dissemination effort of the R & D Center. The resource system, specifically members of the implementation unit, were involved with the SEA IGE/MUS-E coordinator, the TEI representative, and LEA personnel.

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[2] Wisconsin Research and Development Center, IGE/Multiunit Elementary Schools 1972-73 Directory (Madison, WI.: Wisconsin Research and Development Center for Cognitive Learning, 1972).

[3] Wisconsin Research and Development Center, Memorandum of Agreement, June 26, 1972.

[4] Ibid., Appendix A.

Resource System

Interviews conducted with the members of the implementation unit of the R & D Center revealed a diversity of activities and involvement with agencies in State I. The activities and perceptions of the implementation unit are presented according to the SEA, TEI, and local schools in the state.

R & D Center-SEA activities in State I included training the SEA coordinator, conducting inservice sessions at the SEA, consulting with the SEA coordinator concerning statewide implementation strategies, assisting the SEA coordinator by speaking at State conferences, and providing the initial impetus and skills needed to initiate a statewide IGE/MUS-E implementation program. The involvement between the resource and SEA mediating system in State I, however, varied from very little to moderate involvement. The major reason for the relatively minor R & D Center-SEA involvement was that most of the activities were carried out by the TEI representative. One resource system respondent noted that the SEA coordinator "plays the soft sell in indirect relationships with the various district coordinators; we don't work through him." Another resource system respondent stated, "Most of the work is done by the representative at the TEI." There were several activities involving the implementation staff and the TEI in State I.

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[5] Wisconsin Research and Development Center, Memorandum of Agreement

The TEI representative in State I was described by the resource system as initiating and conducting most of the inservice and workshop activities in the state. One resource system respondent noted that the SEA and TEI "work closely together...they have been referred to as the 'Gold Dust twins'." One implementation unit member noted that the university was not involved with IGE/MUS-E but that the representative was. He stated,

> As far as the university is concerned, I don't do anything with them directly. The representative works out of the university and the workshops I have done with him were because of him not because of the university. They are just now beginning to offer courses in IGE.

The activities and involvement between the resource and mediating systems in State I were characterized by one respondent as unique.

> In [State I] we have a specific agreement with the SEA, but most of the work is done by the TEI representative. The SEA coordinator is competent and he works closely with the TEI representative.

The activities and involvement described between the resource and mediating systems in State I were augmented by the implementation units' descriptions and estimations regarding how activities were carried out, as well as the frequency of the activities. Face-to-face interactions were described as the major means of contact with SEA and TEI coordinators. However, telephone and correspondence were also mentioned by implementation unit members as secondary means of contact. Two implementation unit members noted that joint attendence at major conferences with the SEA and TEI representatives was the most typical manner for carrying out resource and mediating system activities. The frequency of face-to-face contact, and in one instance telephone contact, ranged from an estimate of four to five times per year at the conferences to ten to fifteen times per year at a variety of activities. One respondent noted that telephone contact with the TEI and SEA representatives in State I was on a weekly basis. Table 7 is a delineation of the resource systems' estimations of the frequency of face-to-face contact.

TABLE 7

ANNUAL FREQUENCY OF FACE-TO-FACE CONTACT BETWEEN THE RESOURCE SYSTEM AND THE SEA AND TEI REPRESENTATIVES IN STATE I

	Mediating System		
Implementation Unit Member	SEA	TEI	TOTAL
A	6	6	12
B	9	13	22
C	10	10	20
D	6	6	12
E	5	15	20
Total	36	50	86

A summary of the overall nature of the resource system and mediating system activities and contact in State I were (1) centered upon the TEI, and (2) varied contact and frequency of contact among implementation unit members. Three resource system personnel summarized their activities with the mediating systems in State I as revolving around conducting workshops and inservice sessions in concert with the TEI and SEA and consulting with the TEI and SEA representatives concerning specific local school problems. Two implementation unit members summarized their activities as focusing on statewide concerns; hence consultations and informational meetings dominated their activities. The resource system's activities and involvement with two user systems in State I provided additional insight with respect to the R & D Center's field outreach.

Three of the five implementation unit members had carried out activities involving the two local schools visited by the researcher. The remaining two implementation unit members had never visited the two schools in question or any IGE/MUS-E schools in State I. One member stated, "I haven't worked with any of the schools you've mentioned, I've never been there [State I] on business." The second resource system member stated, "I am not familiar with any schools." However, one implementation unit member, although he had not been to State I, conjectured about the operational characteristics of the two schools in terms of secondary information. The three implementation unit members who had visited local schools implementing IGE/MUS-E, described their activities as (1) inservice sessions, (2) district-wide workshops, and (3) onsite visits which were usually prearranged by the TEI representative based on the local schools which reported operational problems. The number of days spent in State I by the implementation unit staff provided an overview of their involvement. According to R & D Center records, approximately twenty full days had been spent in State I between April, 1971 and June, 1973. The amounts of time required for travel by implementation unit members were excluded from this figure. Of the three resource system members who traveled to State I, the first logged fifteen days; the second, three days; and the third, two days.[6] Each of the three implementation unit members who had traveled to State I had also been to at least one of the two schools visited by the researcher. The perceptions of four respondents with respect to the establishment of I & R Units, IIC, and SPC organizational configurations indicated a high degree of agreement.

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[6] Wisconsin R & D Center, Travel vouchers, April, 1971 - June, 1973.

The first of the two unit members who had visited one of the schools (School A) selected by the TEI representative for the study reported,

> This is unusual to have an entire system committed. It is great because everyone is involved; jealousies and misconceptions are not common. ...I & R Units are established,...the IIC varies in effectiveness due to differences in interpersonal relations,...the SPC is established and highly supportive.

The second implementation unit member noted,

> All the information that I have indicates that they have I & R Units. I've been there. ... They definitely have an IIC ... I go under the assumption they have a SPC because they use our performance objectives. However, it is hard to tell unless you are there to actually see it in operation.

The second school (School B) in State I had been visited by the third implementation unit member who reported,

> I've been there and they have units established...I am certain they have an IIC...however, I have no idea about the SPC.

A fourth implementation unit member, although not having been to State I, conjectured as follows:

> All the information I have is they do have I & R Units even though I haven't visited them. ...I suspect they have IICs,... I really don't know about the SPC. I suspect they don't.

The fifth implementation unit member was unable to conjecture about the establishment of organizational structures in any of the schools in State I. However, he did assert the following, "I'd say that State I is probably the strongest in IGE in the country." The resource system perceived the two schools visited by the researcher in State I as at least having established I & R Units and an IIC and in general the resource system perceived State I as highly successful in implementing IGE/MUS-E. The responses of the mediating systems in State I provided contrasting perceptions of the R & D Center's involvement, and in some instances contradicted the comments made by implementation unit members.

Mediating Systems

The SEA. The state education agency in State I was represented by the state coordinator for IGE/MUS-E. The coordinator had received a doctorate in educational administration and was formally assigned to the position of elementary consultant. The SEA IGE/MUS-E coordinator related his activities and involvement with (1) the Wisconsin R & D Center, (2) the teacher education institution, and (3) the multiunit schools in the state in general and the two multiunit schools visited by the researcher.

Identifying schools and districts for implementing IGE/MUS-E, providing requested data for the R & D Center, consulting with states interested in implementing IGE/MUS-E, and acting as a resource person at national conferences were the four activities described by the SEA coordinator vis-à-vis the Wisconsin R & D Center. The respondent stated that the agreement between the R & D Center and the SEA defined his activities and involvement. He noted, however, that time was a major constraint with respect to the amount of involvement with IGE/MUS-E. He stated, "My full-time job is with elementary education. I work with MUS-E as much as my time allows." The coordinator estimated that he communicated with the implementation staff at the R & D Center twice a month by telephone and by corresponding. He then noted that his activities regarding MUS-E were closely related to the TEI representative. He stated, "Most of the things I am involved with I work through the TEI representative."

He described his activities with the TEI representative as revolving around (1) planning inservice and preservice activities, (2) conducting the activities, (3) developing evaluation and assessment procedures for the inservice and preservice activities, (4) conducting tours of multiunit schools, and (5) attending state regional meetings regarding MUS-E. The five activities were described as being carried out in concert with the TEI representative. The close involvement with the TEI representative was attested to by the SEA coordinator in his estimate that there was, on the average, face-to-face or telephone contact with the TEI representative at least three times per week.

The SEA coordinator for State I described his activities and involvement with the multiunit schools in the state and he followed his general description by noting specific features of the two schools visited by the researcher. He explained that his involvement with LEAs was essentially at a district and regional level. He stated,

> I see my role as administrative and organizational rather than having direct involvement with LEAs. I have done direct work with LEAs, but primarily it is with the regional coordinators that I spend most of my time. Overall coordination of the state program is my focus.

In addition, the SEA coordinator noted that he had intervened within the SEA on behalf of several multiunit schools which had applied for ESEA Title III funds. He commented, "Without my involvement they wouldn't have been funded." He estimated that he had face-to-face contact with personnel from multiunit schools and districts at least four times per month. Consequently, specific characteristics of the two schools visited by the researcher were difficult for the SEA coordinator to describe. He noted that one school (School B) had I & R Units, an IIC, and an SPC; however, the second school (School A) was unfamiliar to him even though he was involved with this district and consequently knew that there was an SPC. He noted, "I am an exofficio of their SPC. The TEI representative and I attend about three meetings per year."

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The SEA coordinator then addressed himself to the internal characteristics of the SEA, his position within the SEA, and the needs and concerns of the SEA. Within the SEA he noted that after an IGE/MUS-E awareness workshop for subject area specialists and federal program consultants, a number of consultants became interested in IGE/MUS-E. However, the respondent stated, "My personal involvement is essentially the state's contribution." Although SEA personnel were not extensively involved with IGE/MUS-E, he explained that the chief state school officer (CSSO) treated IGE as a special program. Consequently, the coordinator communicated directly with the CSSO at least once a month instead of going through the "bureaucratic chain of command." Summarizing his role within the SEA, he mentioned that no other consultants were formally involved with IGE/MUS-E and that within the SEA he was free to carry out the program according to his own judgment. In reference to the requirements for the role of SEA coordinator in terms of time and skills, he reported that he spent approximately 50 percent of his time on IGE/MUS-E and that experience and skills in administrative, organizational, and curriculum areas were essential. The respondent felt that he had significant influence within the SEA in terms of successfully recommending multiunit schools for federal funds. He explained,

> I can't give you an indicator of influence, but all of these grants are based on my recommendation to the department. If I said no, they weren't worth it, then they wouldn't have been funded.

He explained that IGE/MUS-E was the first innovation, to his knowledge, to have been supported by the SEA and he stated, "I have a good feeling about IGE, what carry over there is to the department is incidental." The SEA coordinator delineated a variety of general needs for improving the implementation of IGE/MUS-E as follows:

> Recognition of the extent of the degree of involvement this program requires of SEAs, especially at the outset; broad guidelines of role definitions, [and] procedures...and...a policy that other specialists, resource people within and outside of the department are available for projects, especially research and evaluation. (Would you say this is a need?) Yes! Very much! The R & D Center has just not come through with this. (What should they be doing?) Developing guidelines and suggested procedures for conducting empirical research related to the instructional programming model and the organizational and administrative model... The feasibility of specific organizational components, the operant procedures of the I & R Units, IIC, and SPC. (What you are saying is that they haven't evaluated it?) Yes! See the people at the R & D Center....I've asked them for two years for evaluations! Evaluation procedures should go right to LEAs.... (How is the relationship between the SEA and the R & D Center with regard to evaluation and assessment?) They blew it here, but on implementation and dissemination they come through greatly, on initial dissemination that is. They saw we could do it so they phased out which was okay with us.

Guidelines, curriculum specialists, and evaluation were the major needs from the perspective of the SEA in State I for successful implementation of IGE/MUS-E. A somewhat different mediating system perspective was obtained from an interview with the teacher education institution representative.

The TEI. The TEI representative had earned a master's degree and had previous experience in curriculum coordination. The representative described the activities and involvement he had with the R & D Center, the SEA, and the multiunit schools in the state. He explained that the activities and involvement between the TEI and the R & D Center had changed over the last two years. Initially, a close relationship was maintained through joint identification of potential MUS-Es, implementation of awareness sessions, and consultation with implementation unit members. However, the current relationship was characterized by independent initiation and implementation of workshops by the TEI. Visits to the R & D Center by the TEI representative were described as fulfilling the need for keeping the R & D Center informed about field operations. However, he noted that telephone contact was at least once a week and it supplemented face-to-face contact with implementation unit members.

The activities and relationships between the TEI and SEA were described in terms of a "strong team effort." The TEI respondent elaborated as follows upon the significance of the TEI and SEA relationship which revolved around the joint implementation of workshops, regional meetings, and statewide conferences:

> The SEA can't get state colleges to cooperate. In this state the SEA came to a private university. State colleges don't have any responsiveness to the SEA and change because they have guaranteed funds, whereas we must compete.

The TEI representative estimated that contact with the SEA coordinator was two to three times per week by either telephone, face-to-face, or short notes. Although the TEI-SEA relationship was characterized as team oriented and effective, the focus of power was described as being with the superintendents of multiunit school districts.

The strong relationship which the TEI representative described with respect to LEAs revolved around the support of superintendents and the league concept. The regional partitioning of multiunit schools into leagues and the requirement that each MUS-E work with a university or a Title III Center was considered as fostering solidarity and support for IGE/MUS-E. The advantages of having a university associated with the LEA's implementation of IGE/MUS-E apparently attributed to the strong relationship and support between the TEI and LEAs. He described the following incident which illustrated the effectiveness of the superintendent's support:

> I had eighteen superintendents come to the dean's office and say, "Do you want your students hired? Do you want our teachers taking courses? Then you better support IGE."...We have an illusion of power....We have the most highly organized state organization in IGE that exists in the country. Superintendents will get together and push with me to anyone.

In reference to the two MUS-Es visited by the researcher, the TEI representative was familiar with both schools. He described the first school (School A) in terms of I & R Units, IIC and SPC as follows:

> They [I & R Units] are a little below average in terms of the progress of implementing IGE. The units have overcome the initial hump as working as a team. ...The principal doesn't have the human skills to be effective...[he]...is threatened by unit leaders, if you are insecure, then you are matching wits against capable people in the building, whereas before you just told them. When I see a principal at an IIC meeting dictating, then I see a scared principal....[The SPC is functioning, and has systemwide input and initiation of policy, and teachers speak freely]... it is not excellent and they haven't reached their potential however.

The second school (School B) was described as follows by the TEI representative in terms of the I & R Units, IIC, and SPC:

> They [I & R Units] are better, they are exceptional, they have excellent communication and group problem solving.... The principal is secure, and confident, and he encourages experimentation. He allows for risks, and he supports the unit leaders....[The SPC is weak due to two out of seven schools still operating as self-contained classrooms]. These two schools feel threatened, therefore there are strong reasons for not having a strong SPC.

The representative then addressed the internal characteristics and concerns of the TEI in terms of the structures and capabilities impinging upon the implementation of IGE/MUS-E.

He explained that within the TEI there was, initially, minimal cooperation and involvement by undergraduate and graduate professors but now that superintendents were putting pressure on the TEI to respond to the needs of IGE/MUS-Es there was greater involvement. He stated, "We have reorganized due to pressure to move into IGE so now I am meeting with graduate and undergraduate professors." The respondent noted that he spoke with the associate dean about three times per week and that the associate dean's support of IGE was due, in part, to a visit to the R & D Center. There was, however, no assistance given to the TEI representative from the school of education and it was necessary for local resource people to be called on to assist other IGE/MUS-Es. He felt that although the role of a TEI IGE/MUS-E implementor was unstructured and initially ambiguous it had evolved into an effective position. The respondent estimated that 80 percent of his time was spent in the field helping IGE/MUS-Es and that 20 percent was spent internally dealing with IGE/MUS-E. The critical skills needed to perform the role of a TEI implementor were described as communication, organization, and political. He stated,

> My strengths are communication and capability to work with a group and get it done. I didn't know where the power was at first, but I do now.

Concomitantly, the respondent described in the following way the influence he had for getting IGE/MUS-E programs established at the university:

> The power I have today is a combination of what I do and more importantly, the things people think I have done. The relationship with the R & D Center has really helped with feedback to the associate dean.

He noted that the TEI had been involved with other innovations prior to IGE/MUS-E. Their involvement with the open school plan was considered as having some influence on the current success of the IGE/MUS-E program. He summarized the overall implementation effort by outlining a variety of needs ranging from field orientation to training programs and evaluation models. The research orientation of the R & D Center as opposed to a liaison and dissemination orientation of a teacher education institution was considered as militating against a strong resource system field orientation. He stated,

> I think the R & D Center wasn't prepared for the response they got [from local schools]. The response they gave at the system level was okay, beyond that nothing. They built very little support beyond that. They could have learned from I/D/E/A and the leagues. That is one of the reasons for Ironside's conclusions, the isolation of schools once they got the initial input, once they got the initial flurry, and then there isn't anyone there to follow up, and then they [the schools] taper off. The Center's network is not working. The people with the practical skills to help implement are scarce, theoreticians are plentiful. The R & D Center does recognize the need but not enough...neither [I/D/E/A or the R & D Center] are right. ...neither one has the resources to put them [MUS-Es] together. The R & D Center has good curriculum development and I/D/E/A has good implementation.

The respondent also noted that the training programs of both the R & D Center and the I/D/E/A concentrated on knowledge about IGE/MUS-E to the exclusion of critical skills and training for operating within an IGE/MUS-E configuration. Also, he stated that explicit role definitions were needed for TEI and SEA coordinators--especially if they were "starting out for the first time." He asserted that the major need of TEI representatives was to create staff commitment within the TEI. He outlined several evaluation needs with respect to the R & D Center, as follows:

> We've given up on the R & D Center. We have things [evaluation] going on of our own here. We have identified ...evaluation needs. ...On the basis of several [league] meetings, we identified resource people to develop an evaluation model. If schools want it [the model] they first determine whether or not they are really organized as MUS-E. We are also working on instruments in word attack, math, and the affective domain. The leagues share the instruments. (Why was the R & D Center so weak on evaluation?) The R & D Center is interested naturally, but the LEAs are local and the R & D Center would give results whereas we needed models. ...I think the R & D Center is falling behind, people in the field are more knowledgeable than they are.

In summary, the TEI representative outlined the major areas of need as (1) a stronger field orientation, (2) a systematic followup at the building level, (3) the construction of regional MUS-E leagues, (4) a focus on critical skills in addition to knowledge, (5) the need for explicit role definitions, and (6) the development of evaluation models for use by MUS-E personnel. The user system visited in State I by the researcher provided insights not only with respect to the six areas of need outlined by the TEI respondent but also with respect to the needs outlined by the SEA coordinator and to the perceptions of the implementation unit staff.

User Systems

The two multiunit schools visited in State I are discussed in terms of each respondents' description of the activities and involvement with the R & D Center, the SEA, and the TEI. The description of activities is followed by each respondent's assessment of the organizational configuration of MUS-E in terms of the I & R Units, the IIC, and the SPC. The descriptions and assessments are then followed by each respondent's report on the internal characteristics and needs of the school.

School A

The school, located in a suburban area, was approximately thirty years old. The quiet halls, shining with fresh wax, were posted with signs stating: WALK IN THE HALLS FOR YOUR OWN SAKE and FOLLOW THE RULES IN THE HALL. Interviews were conducted with the principal, a unit leader, and a unit teacher.

The Principal. The forty-eight year old principal had earned a certificate of advanced graduate standing and aspired to be an assistant superintendent. He described the activities and involvement he had with the R & D Center, the SEA, and the TEI.

He noted that the involvement with the R & D Center focused primarily on newsletters and materials. The amount of involvement was considered to be "not very much, they are always sending materials, they send a few questionnaires." He described a visit to the R & D Center for inservice training in DMP and he implicitly referred to the consequences of the visit at the close of the interview. He stated,

> I went to the DMP workshop, it was good and everything but when I got back I found I didn't have enough information to implement the program. The teachers were upset, they really tore me apart! ...It was really embarrassing for me. If the teachers from Janesville schools had come out here or I visited them for three days I would have gotten more out of it. All I got was theory! And people telling me DMP was great!

He then described the activities and involvement conducted with the SEA. The SEA coordinator had visited the school once and the respondent noted,

> I don't have too much communication with the State, I work with the TEI coordinator. The assistant superintendent works with the SEA coordinator.

The principal did have extensive involvement with the TEI representative through monthly meetings for principals and teachers. Although the nature of the league meetings was described as informational, he concluded: "It keeps the lines of communication open... and... we are always getting communications from there." The communications included materials, films, and evaluation information. He then described the I & R Units, the IIC and the SPC.

The I & R Units were described as being significantly different from the previous year and from the R & D Center's definition. Three differences were noted: (1) more than 150 children per unit, (2) nonoverlapping units, and (3) reduced shifting between classes. The IIC was reported to be operating and that forty-five minute meetings were held each week. The SPC met monthly and it was considered established. It was chaired by the assistant superintendent for elementary education. Internal characteristics of the district and the principal's role were then discussed.

The principal estimated that there were monthly visits by the assistant superintendent for elementary education and that he could talk with him "often, anytime." He noted that although he delegated tasks to the unit leaders he was responsible for all activities. The structured role described as follows by the respondent indicated corresponding superordinate control:

> If I wanted to try a new program I'd see the assistant superintendent. I guess it is more structured than I thought. If I wanted to do something in reading I'd have to check with the central office. If they didn't like it then it is out. ...It puts limitations on me, when you are trying different things and your superior says no then you get to think why bother. You know there is a good quote something like the fear of losing takes the joy out of winning.

He estimated that 50 percent of his working hours were spent on IGE/MUS-E activities but that meetings on IGE and other topics prevented him from doing a number of activities. The implication that IGE/MUS-E resulted in many meetings which reduced time available for instructional concerns was presented as follows:

> I can't do many of the things I could in the past, like visiting classrooms, observing teachers, helping them, observing children with problems. Primarily the reason is that there are so many meetings...we had fourteen school days in February and I had eight meetings...This month I've had six out of twelve days of meetings.

Decision making and group dynamics skills were considered critical He noted that shared decision making and involvement were not "always learned very readily" and that " personality is important but you can't change that." Talking with diverse groups was also considered an important skill for IGE/MUS-E principals. He felt that although the superintendent and assistant superintendent had all the power, he had influence within the school especially since he had visited the R & D

Center. He noted that the district had tried a variety of innovations over the years: team teaching, reading programs, report card changes. The most recent innovation, career education, was considered to be too time consuming; he stated, "I think the teachers are too busy for it." At the conclusion of the interview, he noted that althouth the R & D Center was helpful with IGE/MUS-E he "was not going to introduce anymore of their curriculums." The apparent reason for this decision was to avoid being embarrassed as had happened when he attempted to conduct an inservice session on DMP. He outlined one major concern for the successful implementation of IGE/MUS-E as follows:

> Here we went all out, all the schools were involved. I would have preferred first one or two schools. I was asked whether I would like to try it, I said, "Sure, why not?" By the summer we had four schools. There are still teachers who like the traditional setup but they have no place to go. This isn't fair to the teacher or the kids. The ones who don't want it have no place to transfer... . The redistricting and all has brought in new kids and they need more structure, but there aren't any self-contained classrooms.

The Unit Leader. The unit leader had earned a certificate of advanced graduate standing and aspired to be a principal. He provided a different perspective of the school; he criticized the role performance of the principal. He described activities carried out with the R & D Center, the SEA, and the TEI. Although he considered the activities of the R & D Center "really nothing" he described the initial MUS-E workshop and two subsequent inservice sessions on DMP as follows:

> The initial workshop didn't use our own team. They wanted us to be familiar with the techniques but going through it [workshop] doesn't make you an expert. (Do you feel the Center is focusing on teachers?) No! They all claim that but they don't. ...we had someone from the Center last fall. He gave us some research data which was interesting to digest, it was rather academic. ...He had never taught DMP--he wrote it--he had never taught it! He was philosophical--not too helpful. ...Then someone else came, he just talked to us in the teacher's lounge. He wanted to pick our brains to find out how it could be refined.

He commented that the major involvement with the R & D Center was through materials and films; face-to-face contact was estimated to be on an annual basis. The films were described as positive propaganda. He stated,

> I know it is positive propaganda, but its practical use is limited. Parents have been sold a bill of goods and then expect to see a one-to-five teacher-student ratio! This isn't happening.

The SEA was characterized as having minimal involvement. He stated, "We have very little to do with them." He noted that the SEA coordinator had offered to assist the district but stated, "I don't know what kind of help he gives." The TEI representative was described as having more extensive contact with the school and district than the SEA coordinator. He noted, "the SPC calls him in more than individual units ...however...his role description is too vast and too broad." He commented that he could telephone the TEI representative if he wanted, there was a TEI newsletter three times a year, and that there was face-to-face contact twice a year. The unit leader then described the I & R Units, the IIC, and the SPC.

The I & R Units were described as "not that pure" in relation to the R & D Center's definition. He explained as follows:

> As long as our bastardization of the guidelines is not that detrimental, then okay. ...Originally all the schools had overlapping age grouping, so parents came in and complained that their kids were in baby units. Also, there was a concern about the psychological effect. Curriculum division was more difficult so we developed our own system.

The IIC was considered as deviating significantly from the R & D Center's definition. He stated,

> We don't have as many faculty meetings, instead of having faculty meetings we have a smaller group where the principal says "tell your teachers such and such." Once in a while we come close to the definition, but we aren't close. It doesn't have a direction. (Why?) It's maybe that everybody brings a different awareness of the program into it. ...It can't be brought together unless the chairman has a clear idea to bring it together. If you don't have this agreement then forget it! Even if all the unit leaders thought the same it would move, but then you wouldn't need the principal.

The SPC was described as weak and traditional. He stated,

> It is a little weak. There are just two or three who speak, get things off the ground. ...Others feel they are an advisory group. They appear not to be seeking or making new directions, but rather "What do you want great white father?" ...The leadership runs it like it was the old way unless they are uncomfortable and then they ask you.

The interviewee then addressed a number of questions dealing with the internal characteristics of his role and the school. He noted as follows that his unit worked very closely: "We function like a wheel, we get involved in everything, our roles are getting set." He commented as follows that the principal was not involved with unit activities:

> Anything we discuss is within the team. ...There is nothing pulled from him [principal] dealing with curriculum or management. One or two things we have done which were off beat he insisted on a rationale.

He estimated that unit meetings were held twice a week for two hours, and that at first the unit teachers would have preferred self-contained classrooms but "now all but one would not go back." The overall climate in the district was described as a function of the proponents and opponents to MUS-E. He noted that most teachers did not transfer between schools when the program was instituted since some principals didn't want all the negative teachers congregating in a few schools.

Re-focusing on his unit, he stated that during the first year of the implementation there was no specialization, each teacher was responsible for a class, but that now there was specialization for one hour a day, five days a week in social studies and science. These two areas were taught to the whole unit. He described, in the following way, the role of the unit leader as evolving: "The unit leader is a new position, no one knew where it was going to go." However, he perceived his role as structured in terms of the management and reporting system of IGE. In addition, he commented, with respect to the blurring of responsibilities between the principal and unit leaders, as follows: "I try never to cross that line. He will say to tell someone to do something, but I won't! That is not my job, that is his!"

He felt that organization, sound structure, and group dynamics were critical skills for unit leaders. He noted,

> I never go into their [unit teachers] rooms. My presence wouldn't help. My job is to feed into the team, to facilitate.

He remarked that "leader" was a "pompous word" in connection with the role of the unit leader. He felt he had considerable influence within the school and described a survey he initiated to determine an alternative I & R Unit system. He commented that the district suffered from a lack of inter-school communication and "cross-fertilization" of innovations, and he concluded that the major need for successful implementation of IGE/MUS-E was "...as much money and training as possible should be focused on the group dynamics that makes a team function."

The Unit Teacher. The third and last interview in School A was conducted with a 60-year-old unit teacher who had earned a bachelor's degree and was looking forward to retirement. He described his contact with the R & D Center, SEA, and TEI.

The unit teacher had attended the initial implementation workshop and he had attended a DMP workshop. He referred to the latter as a "wasted afternoon." He also asserted that the DMP curriculum was "...so wordy and complicated that you need a Chinese interpreter...". Materials produced by the R & D Center and information which was disseminated at monthly league meetings were considered as the primary contact with the R & D Center. He then described his involvement with the SEA coordinator.

Minimal contact and activities were associated with the SEA coordinator who was considered as "going along with it." Monthly league meetings constituted the vehicle for SEA contact. Comparable involvement and activities were associated with the TEI representative.

He noted that the TEI representative organized and conducted monthly meetings at which information concerning workshops and related events were disseminated. The monthly meetings were considered to be a "waste of time." He then addressed the question of establishment of the I & R Units, the IIC, and the SPC.

He stated emphatically that I & R Units were established, that an IIC was established, and that an SPC was definitely operating. However, he commented, "I don't know much about the IIC." He then explained that the unit of which he was a member, "gets along great. We have unit meetings three times a week for forty-five minutes." Re-grouping specific children and general unit concerns were the major topics of the unit meetings. Communication with the principal was reported to be minimal and communication with the unit leader was reported to be during the unit meetings. A revised focus of the unit was described in terms of specialization. He noted that during the first year parental objections and confusion were associated with specialization so this year specialization was discontinued. He stated, "Now there is less chaos. We are all

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well grounded teachers so there isn't much of a reason for specializing."

He perceived himself as a structured person, and he stated, "I have an idea of what is expected of me. I know what to do." He did feel that specific experiences were required for IGE/MUS-E. He described the experiences as follows:

> You should have a broad educational background of subject matter and have lots of experience prior to IGE. ...If you don't have experience, then you can't function. ...IGE is far more permissive so you have to know what the differences are between IGE and self-contained.

He felt that he had very little influence within the school and that within the unit he had "just one vote." He concluded in the following way by noting a number of operational needs of and his dissatisfaction with IGE/MUS-E.

> I cornered one of the people from the R & D Center and asked them if it makes a difference, IGE and self-contained. No! was the answer. It is just not for everybody. I have some children who can't work in chaos and some need quiet. They [R & D Center] may think kids work better on the floor--I think they do better at a desk. ...Have they [R & D Center] ever been in the classroom? Maybe a day, a week, but they are the theoreticians. Putting it into practice is different. They don't know what is happening! ...You have too much duplication in meetings. They overlap, it is time consuming. We need more planning time. The one and half hour league meeting is repetition of what I already know.

The interviewee perceived (1) the R & D Center as having an overly theoretical approach, (2) IGE/MUS-E as being too permissive and chaotic, and (3) meetings as being overlapping and time consuming. A contrasting perspective was provided by respondents in School B.

School B

The second school, located in a suburban setting, was constructed in 1970 as an open school. Four modules with sliding partitions, wall-to-wall carpeting, and brightly colored furnishings provided a contrast with School A. There were student-composed sayings along the halls and quotes

EACH BECOME ALL HE IS CAPABLE OF BEING--EXPAND IF POSSIBLE HIS FULL GROWTH AND SHOW HIMSELF AT LENGTH IN HIS OWN SHAPE AND STATUS-BE THESE WHAT THEY MAY. In addition to the quotes which reflected the atmosphere of the school, there was an orange sign: ASK ME ABOUT WISCONSIN DESIGN, and an organization chart which depicted the R & D Center in the superordinate position.

The Principal. The thirty-year-old principal had received a master's degree in educational administration and had earned thirty post-master's credits. He aspired toward a superintendency in order to promote change on a district level. The principal outlined a number of activities involving the R & D Center, SEA, and TEI.

He had attended three Center workshops, one at the district, one at the TEI, and one at the R & D Center. In addition to the workshops, inservice materials, films, and public relations materials were noted as additional contact with the Center. He commented as follows upon two visits by R & D Center personnel to the school:

> One visited the IIC, another visited the school and commented how nice it was. I think they came out here to learn something not teach us something. Their role is training trainers.

He estimated that he had face-to-face contact with R & D Center personnel at least once a year. Activities with the SEA coordinator were limited to monthly league meetings and the impact of the SEA was reported to be limited to a statement by the CSSO supporting IGE. He elaborated upon the activities and involvement with the teacher education institution.

Monthly league meetings, inservice training for principals, unit leaders, and unit teachers, and overall coordination were delineated as the essential activities of the TEI. He commented as follows on the impact of the TEI in terms of inservice training in group dynamics:

> The biggest impact of the TEI, besides coordination, has been the use of three or four professors in group dynamics. They have done this with our staff. ...They will have more impact on new IGE schools than the R & D Center, especially when they begin to have courses and MA degrees in IGE.

The TEI representative was reported as being in contact with the school at least twice a month in addition to the two league meetings, one for principals and one for the district representatives. Consequently, it appeared that the TEI was associated with extensive inservice training and involvement, followed by the R & D Center which was associated with an overly theoretical orientation, and followed in third place by the SEA which had minimal involvement. He then described the school's I & R Units, and IIC, and the district's SPC.

He commented that the established I & R Units need improvement in the areas of (1) age spanning, (2) unit leader planning time, and (3) interunit communication. The IIC was described as "not functioning as well as it should." He stated that multiaging, the use of the media center, and the role of the unit leader were the major issues discussed by the IIC. Although improvements were needed in the IIC he stated, "It is a good vehicle of communication between me and the units. It gets the rest of the staff more involved." He then noted as follows that an SPC was established but that it was not responsible for policy:

> The superintendent has said that only he and the board make policy, the SPC can only make plans. Here the name was changed to System Planning Committee. If we could make policy, then we would really be effective. At first we were a policy group, then we changed. Now our agendas are devoted to writing job descriptions and making recommendations for the budget. IGE evaluation is a good example. The superintendent wants to see how to evaluate IGE, the SPC was totally bypassed. The principals weren't, but the SPC was. There is some clouding of roles here. Why are we [SPC] meeting?

He enumerated a number of issues discussed at the SPC. The role of the unit leader was noted as a frequent topic. He stated,

> Some schools felt that the unit leader should have his responsibilities spelled out. Do they say 'I am the boss, do it?' Or do they go to the principal? I don't remember internally that a teacher ever has crossed another. Some leaders are stronger than others. There are value differences that need attention and unit leaders need to feel security so they can do something.

He then addressed a number of questions dealing with the internal characteristics of the school and his role as principal. Involvement with the central office was limited to weekly meetings with the director of elementary education and additional contact when "parents complain." He revealed strong feelings toward central office involvement as follows:

> The board is asking for standardizations and the day this school is even with others is the day I'll resign. The central office has not interfered with our direction.

He estimated that he communicated with the superintendent once every ten days and that the superintendent "does take interest in elementary education--moreso than most; he really brought IGE in." He explained that he was trying to increase unit leader decision making by delegating responsibility. Increased staff decision making was equated with increased specialization. He stated,

> We are trying to get more staff decisions. I believe in more shared decision making. I try to actually practice democratic decision making and the teachers are now looking at alternatives. ...We have fewer rules and regulations than many schools. This makes it harder for some teachers since they have to interpret. Some don't like that much responsibility.

He explained that his role was unstructured because he "... liked to practice the philosophy of the school." He noted, however, that the central office was trying to impose structure. He estimated that 75 percent of his day was spent on IGE/MUS-E activities but that meetings imposed a time constraint. He explained, "There have been too many meetings. ...I have six meetings a month and I'd rather be here more." He then outlined the essential skills and experiences needed to be an effective IGE/MUS-E principal. Training in interpersonal relations, the ability to listen and give, and the skills to establish priorities were the essential competencies noted. He felt influential with respect to the implementation and maintenance of IGE/MUS-E. He stated,

> The school has become a change agent for the district. Things that have happened curriculum wise are being adopted by others in the system. ...At the SPC I have a strong leadership role and the teachers see me as being close to them.

He described the district as being conservative and he noted that when the school was built only two teachers voluntarily transferred. He concluded by noting a number of needs for successfully implementing IGE/MUS-E. The implementation practices of the R & D Center, the content of the inservice, and the formation of and freedom given to I & R Units were mentioned. With respect to the R & D Center's implementation practices the principal noted,

> You need a practitioner that has been trained, that has some reality, not a theoretician on the "model". The problem is with their followup and assistance. Nobody has come in and said "you should be doing this and that." That is why the superintendent is concerned with evaluation. It [IGE/MUS-E] has been left to the principals. There is no followup assistance from U.W.

With respect to the content of inservice sessions the principal asserted,

> Group dynamics is the biggest need. Communication, knowing what it is to give and take in a unit. This whole group dynamics thing has been missing [from the R & D Center] and the league also hasn't gotten down to this in the nitty gritty. ...also...A weakness in Wisconsin's implementation phase is the skill grouping function and the vagueness of the groupings and priorities that go with it. They don't get into other means such as using other curriculums, it is always skill grouping and they don't focus on size variations.

He concluded by noting that the formation of units was a critical need. He stated, "The formation of units would have to be done very carefully. Here,...the unit hires its own replacements." The comments of the principal of School B were substantiated by interviews with two unit leaders.

Unit Leader A. The first unit leader had held the position for two years. He had earned a master's degree in 1960 and had eighteen post-master's credits. He described his activities with the R & D Center, SEA, and TEI. He stated that there had been one implementation workshop "to get acquainted." However, he noted, "What they were doing was putting on their sales pitch. Films, the advantages." The workshop had been conducted by the R & D Center in concert with the TEI. He estimated that excluding materials, films, and questionnaires, his contact with the R & D Center was once in two years.

He commented that there were no activities associated with the SEA, however, there was contact with the TEI. He had been involved in a series of sensitivity sessions with a student intern and the sessions had been supervised by two professors. He estimated that face-to-face contact with members of the TEI was three times a year and that the principal frequently related information from the TEI representative. He described the I & R Units, the IIC, and the SPC.

Although the I & R Units were considered to be established, he felt that they deviated from the ideal due to the minimal number of teacher aides. The weekly IIC meeting was described as follows: "We don't have a lively IIC; we may not have that many problems. There are no agitator types." The SPC was described and a frequent issue discussed at the SPC was outlined as follows:

> That is one where teachers come and sit and don't say much. ...They meet and see the agenda and that's it. ...[a frequent issue is]...how much authority a unit leader should have. Should they be able to say "Don't do that"? In some units there are teachers who haven't done what they are supposed to do. Where does the authority belong? The principal? (What is your personal feeling?) In my cluster I don't see that problem. ...(Maybe the self-contained classrooms with units were involved?) Oh yes! It is much harder for the unit leader to work in. I don't see how you could have an effective unit if there were one at odds.

He then addressed a number of questions dealing with the internal characteristics of the school and his role.

A close working relationship with the unit teachers was described, as follows: "We have a very close relationship. We all have one area we cover, science, social studies or language." He also noted that central office contact had been limited to the previous year when a social worker visited the unit. He explained the reason for the social worker's presence as follows:

> It is easier to spot problems in an open classroom than in the self-contained. He could sit quietly all year and you'd never know anything was wrong.

He expanded upon the communication within the unit in the following way:

> We all get here early, 7:30, and during lunch we get together but really it is an ongoing meeting in our cluster. If we have a problem we discuss it right there. That is why we probably get along so well, we are all together.

He perceived his role as unit leader as revolving around the daily interactions with the unit teachers. Group dynamics and sensitivity training were considered helpful experiences and enthusiasm, rapport with children, hard work, and conscientiousness were considered essential traits for unit leaders and teachers. He noted that the unit teachers in his cluster "pull their load" and that they were "our type, they have lots of initiative." He felt that his cluster acted as a model for other clusters in the school, however, he added, "We don't try to be the top, we aren't trying to impress anybody but ourselves." He then commented on the district's history for innovation and he listed a series of conditions for establishing a MUS-E. Lack of previous innovation was attributed to a superintendent who had been there "a long time" and the recent initiation of innovations was attributed to a new superintendent who was "a real ball of fire" and to the creating of a new position of director of elementary education. He concluded the interview by delineating a number of essential factors for a successful multiunit school, as follows:

> Having a principal and staff that are 100 percent for it--that really want it--if they are only half-hearted then forget it... You have to have a principal who really wants it, not one who just had it foisted on him. ...There is more noise and some teachers can't cope with that, they want more structure...and...there is extra work and confusion. ...[as for university courses you need]... working ones, not lecture, lecture, lecture. Teachers like to see things working. Teachers want to know what to do and how to do it! They learn enough philosophy.

At the end of the interview he noted that the staff of a prospective MUS-E should first visit a number of multiunit schools prior to making a decision to adopt. A comparable perspective was provided by a second unit leader.

Unit Leader B. The second unit leader had earned a bachelor's degree, had been a unit leader for one year and had been a substitute teacher in the school the previous year. He described his activities with the R & D Center, the SEA, and the TEI. He had not had any face-to-face contact with the R & D Center and consequently IGE materials constituted his involvement. He stated that he did not have any contact with the SEA but that he had had some involvement with the TEI representative. A unit leader workshop was described as the activity involving the TEI representative and he noted that the TEI representative had visited the school. Annual contact with the TEI representative was estimated. He then described the I & R Units, the IIC, and the SPC.

The I & R Units were considered as "close as practical" to the R & D Center's definition and the IIC was perceived as being consistent with the R & D Center's definition. He noted, however, that specific unit concerns were not usually discussed since they did not involve all the units. The SPC was characterized as the "representative body of the superintendent." Procedures and characteristics of the unit were then described.

A close working relationship was described with the teachers in the unit. He stated,

> [We work] as close as possible, it is almost like a marriage. If we weren't working that closely you wouldn't have to talk things out so much, you could just close the door. You got to find a solution that everyone is comfortable with, you can't impose a solution, it takes a lot of time. ...You have to run around for a week to get agreement. I spend most of my time, energy, and patience doing this--no one recognized that!

He described the specialization within the unit and the routine associated with large group instruction as follows:

> We are very pointed in not doing that [specialization]. The only thing I see specialized is physical education. Everybody teaches reading, science, and social studies. We try to draw on each other's strengths--if I am really going on something, I don't mind having other kids come in. (Do kids tend to stick with one teacher?) Well, it depends on how far you want to go. Last year we changed kids, then it was too confusing. Now each teacher is responsible for a certain number of kids, but the kids will see other teachers as theirs. We change kids back and forth. (How do you get freed up?) If the kids have music or something then I am free. If I am teaching a large unit the other teachers may stay to help, but when I leave (the other unit teacher) he resents it, especially when I am out of the room frequently due to the practice teacher I have. The one who is being freed sticks around to see if all is okay. The thing you do for the whole unit is usually the subject you are really into. You can't impose it on the other teachers though.

He then noted as follows that an unstructured approach was followed in the unit: "I try to be unstructured as much as possible. We probably spend more time trying to work things out this way." He commented that even though a $300 stipend was given to unit leaders "...it is not enough to compensate for the extra work, it takes away team spirit, and I've gotten a few jabs: 'You're being paid for it'." He delineated three skills necessary for being an effective unit leader: maturity, humanness, and a sense of what other people's values are worth. He felt that he didn't have any influence and he stated that the school district "really didn't understand what they were getting into" vis-à-vis IGE/MUS-E. The interview was concluded by a discussion of a major concern of IGE/MUS-E, the role of the unit leader. He stated,

> The unit leaders teach a full load plus being a unit leader. There isn't enough time to get all the things solved. How much is practical and what is ideal? How much the community would allow for unit leaders not to teach is not much--they wouldn't hear of it!...Where does the unit leader stand? The role of the unit leader was discussed all fall. The unit leader could be hung for everything. There is nothing there [Center literature] about the rights of the unit leader, it never gets discussed. Other unit leaders feel this way but they won't say so. Other teachers resent unit leaders. Once they took them [unit leaders] off noon duty, but the other teachers raised a stink. ...I think I have a few rights along with all these resonsibilities.

At the close of the interview, he reflected on his teaching career and stated, "There is more work with MUS-E but much more satisfaction...there is more camaradarie....There is a feeling among the teachers of being more willing to try things."

The results of the eight interviews conducted in State I revealed different concerns based upon the organizational level of the respondent. A state-level position revealed macro concerns whereas a local-level position revealed micro concerns.

A different organizational arrangement for diffusing IGE/MUS-E was illustrated in State II.

State II

The brief overview of State II includes consideration of (1) the number of multiunit schools established as of the 1971-72 and 1972-73 school years, (2) the implementation contract between the Wisconsin R & D Center and the SEA, and (3) the training contract between the Wisconsin R & D Center and the TEI.

At the beginning of the 1971-72 school year, State II had 21 multiunit schools[7] and by the 1972-73 school year there were 73 multiunit schools[8] in operation. The state education agency contracted with the R & D Center to implement twenty new MUS-Es and maintain twenty-one MUS-Es previously established. Funds were provided for the maintenance function ($20,000) and a financial assistance formula was designed to reimburse the SEA for the number of new MUS-Es established between June, 1972 and February, 1973.[9] The training contract between the R & D Center and the TEI involved reimbursing the TEI for offering and conducting a one-week institute for fifty lead teachers.[10] The members of the implementation unit provided a contrasting view of the degree of involvement with the SEA, TEI, and LEAs.

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[7] 1971-72 Directory of IGE/MUS-E, op. cit.

[8] IGE/MUS-E 1972-73 Directory, op. cit.

Resource System

Interviews conducted with the members of the implementation unit of the R & D Center revealed a diversity of activities and involvements with the three systems in State II. Four out of the five implementation unit members had been to State II between April, 1971 and June, 1973. The actual number of days spent in State II, excluding travel time, was twenty-one.[11] The R & D Center-SEA activities revolved around conferences, inservice workshops and consultations with SEA personnel. One implementation unit member described his activities with the SEA in State II as follows:

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[9] Wisconsin Research and Development Center, Memorandum of Agreement, August 1, 1972.

[10] Wisconsin Research and Development Center, Memorandum of Agreement, June 8, 1972.

[11] Wisconsin Research and Development Center, Travel Vouchers, April, 1971-June, 1973.

> I have attended and spoken at a number of inservice workshops. I have worked closely with the SEA coordinator. Most of my contact with [State II] takes place through the SEA coordinator.

Another implementation unit member commented that he had been a consultant for the TEI and that the SEA had paid his consulting fees. He noted that he was personally acquainted with the SEA coordinator. A third member stated that the SEA coordinator "plays an indirect role in [State II]. I see him perhaps twice a year at the National Coordinators Conference." A third implementation unit member explained that the involvement of the R & D Center with State II was minimal since the state had effective implementation mechanisms. He stated,

> We did not have the degree of phase-to-phase contact in [State II] because they had a $100,000 grant to set up MUS-E. ...There are facilitators trained there already. Our work in [State II] is definitely centered through the SEA. The first year we put on awareness and principal/unit leader workshops. This year I'd say our input was considerably less than in [State I] because [State II] had built the mechanisms for doing these things and they took the responsibility.

He estimated that the contact with the SEA averaged once every two months. Activities associated with the TEI were also mentioned by the members of the implementation unit.

Consulting with TEI staff was the major activity mentioned by implementation unit members. One member stated, "I've worked with the TEI and was a consultant for them." A second implementation unit member described the overall relationship between the R & D Center and the state as revolving around the TEI. He explained,

> The TEI is specifically charged with carrying out one week institutes, and they were involved in the prototypic planning efforts to carry out the one week workshops. Most of the face-to-face contact we had was at the TEI. ...I'd say they were 98 percent of our contact.

He also noted that there was a strong personal relationship between some of the TEI staff and members of the R & D Center. One member of the R & D

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Center explained that the dean of the TEI was on the National Evaluation Committee and that "he knows our whole program." However, two members of the implementation unit had had very little contact with the TEI. One member stated,

> As far as the TEI is concerned I have not been personally involved. One of their staff members has come here for a number of meetings and I have been to the TEI.

The other respondent noted that he had very little contact with the state and that he had "no contact with the TEI." Of the three implementation unit members that did have contact with the TEI, two reported that they had face-to-face contact six times a year and one reported telephone contact once a year. Table 8 contains a delineation of the annual face-to-face contact between members of the implementation unit and the SEA and TEI.

TABLE 8

ANNUAL FREQUENCY OF FACE-TO-FACE CONTACT BETWEEN THE RESOURCE SYSTEM AND THE SEA AND TEI REPRESENTATIVES IN STATE II

Implementation Unit Member	Mediating System SEA	TEI	Total
A	6	6	12
B	9	1	10
C	2	0	2
D	6	6	12
E	2	0	2
Total	25	13	38

Contact with LEAs in State II was reported to be minimal. Three implementation unit members, however, had conducted inservice workshops with LEAs. One member stated,

> I have been to some individual districts to give inservice. Also I am on call as a consultant for any special meetings or needs they may have.

A second member recalled having conducted two workshops and a third implementation unit member stated, "I haven't been to any schools in

[State II] except one." A fourth implementation unit member summarized the R & D Center's contact with LEAs as being minimal due to the lack of external assistance needed by State II. He stated,

> [State II] had built the mechanisms for doing these things and they took the responsibility. We do continue to work with new school systems and we make workshops available to them; however, our contact is minimal.

The perceptions of the implementation unit with respect to the establishment of I & R Units, IIC, and SPC in the two schools visited by the researcher were necessarily limited since none of the members had been to the schools. However, two implementation unit members were able to conjecture as to the establishment of the three organizational structures. One member felt that the I & R Units, the IIC,and the SPC in the two schools were probably established. He stated,

> They probably have had several workshops so they probably have very good units. ...They all definitely have IIC and this would definitely be true for schools affiliated with the TEI. ...[The SPC] ...I go under this assumption because they use our performance objectives. However, it is hard to tell unless you are there to actually see it in operation.

The second respondent felt that schools associated with the TEI would probably have I & R Units, and an IIC, but the SPC was less likely. He stated,

> If they are connected with the TEI then they probably have them [I & R Units]. ...I suspect they probably do [have an IIC]...but ...I really don't know, I suspect many don't...[have an SPC].

Mediating system respondents provided more detailed information concerning the organizational arrangements in the state and the I & R Units, the IIC, and the SPC in the two schools.

Mediating Systems

Interviews were conducted with the SEA coordinator, three TEI members, and a county agent. The interview with the SEA coordinator focused on

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internal characteristics of the SEA.

The SEA. The SEA coordinator had received a master's degree and had been connected with the SEA for six years. He described his involvement with the R & D Center as revolving around conferences, awareness sessions, visiting other states, and proposal writing. He stated, "The involvement has been maximum. I don't know how much more I could be involved. I am getting tired of going to Madison." He estimated that telephone, face-to-face meetings and correspondence resulted in contact with the R & D Center about three times per week. Activities with the TEI were considered in terms of state coordination.

He explained that there was an explicit relationship between the TEI and the SEA. A coordination function was associated with the SEA whereas an implementation function was associated with the TEI. He explained as follows:

> We saw MUS-E implementation as a function of the university, not the SEA. Most SEAs are limited in personnel and funds. We didn't see training as our role, rather we see ourselves as coordinators. ...The TEI has gone further than we would expect of any other university.

He noted that conferences with TEI representatives constituted the major coordinating activity and that once a week face-to-face contact was made with the TEI personnel. LEA activities were described as focusing on dissemination of information.

He described his relationship with LEAs and the requirement imposed by the SEA that they "link with a local university for IGE." He stated,

> My relationship with LEAs is usually on the basis that I am the first person they contact. I provide them with material. Sometimes I'll go out and talk to them. Then they'll contact a university in their area to work with. I have contact with LEAs through state conferences. There is more interest in IGE than anything else. Sometimes we have mass mailings and we used to put on awareness conferences. We are going to bring together practicing MUS-E teachers this spring to meet each other and share successful practices. This has never been done before.

He estimated that telephone or face-to-face contact with LEAs averaged once a day. Since he did not have specific information regarding the two schools visited by the researcher, he was unable to respond to the questions dealing with I & R Units or IICs. The SPC was considered as an advanced organizational level. He stated, "This level has not been attained in any of the 75 MUS-Es." He added that he did not have detailed information about MUS-Es in the state. Internal characteristics of the SEA were then discussed.

He described the amount of involvement by other SEA personnel as being centered with elementary school specialists and Title III consultants. He noted that competing demands for funds and time and the interests of the SEA staff militated against departmental cooperation. He stated,

> Last year we had three elementary supervisors visit MUS-Es. They have borrowed some materials for awareness activities. I work primarily with the assistant superintendent for instruction. ... (How about other people in the agency?) We are almost at the point of being so pro [IGE] that we may oversell and develop jealousy. Other subject specialists in the SEA see preferential treatment being given IGE. We believe so strongly in its potential for accountability and all of that, that we may develop strained relationships. The other people feel that their programs are important too.

He estimated that daily contact was maintained with the assistant superintendent in addition to bi-weekly reports on MUS-E activities. Monthly contact was estimated with the CSSO. The SEA coordinator attributed his established position within the department as the main reason for successfully initiating the involvement of reading, math, and Title III consultants in IGE. He pointed out, however, that informal channels of communication were balanced by "going through the bureaucratic channels of command." Although a structured role was described, he also felt that his efforts were unstructured. He explained,

> I have five programs including IGE. I have a job description in these areas. However, overall you could say that all of my roles were a non-structured effort toward improving teacner education and teacher aides.

He estimated that 50 percent of his time was spent on IGE/MUS-E. He noted,

> One of the problems is the level of involvement. It can be a full-time job, but I have priorities in other programs. I must effectively manage my time.

Four areas where specific skills and/or experiences were needed to perform the role of SEA coordinator were outlined as follows:

> Training and/or experience in elementary education, responsibility for a relationship with teacher training programs, knowledge of certification and an appreciation of the importance for retraining of teachers, and an ability to relate with different individuals in different settings. The last requirement is most important because you have to work in a coordinating capacity with universities, schools, administrators, traditional people, all kinds.

He assessed himself as having considerable influence within the department regarding the statewide coordination of IGE/MUS-E. The sources for the influence were described as stemming from the support of the assistant superintendent, the commitment of the CSSO, the previous position in Title III, and assorted informal contacts. He gave the following explanation:

> My direct relationship with the assistant superintendent has been a significant factor. ...we have a strong commitment from the state superintendent and the board. ...the CSSO says it [IGE] is the alternative. This hasn't hurt a bit! ...The fact I was in a Title III program, ...hasn't hurt, that kind of background helps in being able to get half a million dollars of Title III for MUS-E. ...The informal relationships I have also help.

He noted as follows that the SEA was embarked on a program of change which constituted a different role within the state: "[Historically the SEA] collected data, enforced rules, and assisted really poor schools. It didn't do much to create new programs." He concluded the interview by expanding on three critical issues for improving the implementation of IGE/MUS-E: SEA strategies, R & D Center evaluation, and I/D/E/A and R & D Center cooperation. He delineated the issues as follows:

> The first thing, states should identify and look at their involvement on a long term basis so it isn't a splash without a ripple. They must seriously obligate themselves to a long range plan, not just a token effort. They should look at MUS-E and decide and develop strategies. If they do that then it assumes support from the administration, the CSSO. He should say this is the direction we are going. Commitment of funds and personnel should follow. (How about the linkage with universities?) A must! They have the resources to get it off the ground. The potential for change through training must be done by them. The SEA isn't involved in training teachers. The SEA doesn't have the power base to effect change at the university level. It has to come from within the schools with the universities, ...they must work together. The universities are accessible, there are fifty-six in [State II] and nine are now committed. The SEA is telling TEIs that supply and demand necessitates working closely with LEAs. Some universities are highly research based, not field based. This barrier must be reconciled. ...It [commitment] must come from within the university, it can't be imposed from without. One stragety is to send people [LEAs] to hesitant universities to get them interested. Schools without affiliation [with a TEI] get into all kinds of problems. ...If a school is really low level they must first get training. Not all LEAs have to be linked, the real good ones don't.

He asserted as follows that evaluation by the R & D Center was also a need:

> They could be more critical of us [SEA] in not getting feedback to them. (Do you feel IGE has been adequately evaluated by the Center?) That is weak. I don't know if it is their fault. They aren't too sure about what evaluation will show. Delaying it may show some things as being better. They are afraid of evaluation. Early evaluation may be misleading. It may be more valid to wait. This is one area you may criticize them.

He introduced the third critical need, the lack of cooperation between the R & D Center and I/D/E/A, as follows:

> The lack of our ability to have a joint I/D/E/A effort is damaging. They maintain rigid isolation. It shouldn't be this way. They have similar objectives. I am disappointed in this, that we haven't been able to join efforts. You get everybody working on the same thing but none working together.

Three TEI representatives provided detailed information concerning LEAs in their vicinity and the processes for implementing IGE/MUS-E.

The TEI. Three TEI representatives were interviewed in State II. The interviews are preceded by a summary of a federally funded project that supported the initial planning for and implementation of the SEA-TEI interlocking effort. The summary provides a basis for understanding the roles of the TEI and the SEA. The purpose of the statewide IGE/MUS-E planning grant was as follows:

> To determine those factors necessary to effect the establishment of multiunit elementary schools which would be linked with the [State II] SEA and teacher training institutions to provide for preservice and continuing competency-based education of teachers....[11]

The project revolved around the assumption that "...local school systems cannot go it [IGE/MUS-E] alone and this raises the issue of the linkages needed."[12] This initial assumption evolved into the primary objective of the planning grant which was stated as follows:

> To evolve a systems approach to change strategies which involve the systematic linkage of public schools, communities, teacher education institutions, and state departments of education.[13]

Consequently, a cooperative and close relationship between the SEA and the TEIs in State II was prescribed in the plan. The role of the TEIs was to train school personnel as opposed to the "mere transmission of materials" and to utilize I/D/E/A materials. The plan stressed that the role of professors in the training process could not effectively be achieved on an ad hoc basis and therefore the following criterion was stated,

> An appropriate number of professors will be assigned to do on-site inservice with multiunit schools. A tentative ratio of one full time equivalent professor for 12 schools has been suggested in the past.[14]

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[11] State II SEA, Planning for a Statewide Network of Multiunit Schools, Competency-Based Teacher Certification, State II SEA, 1972, p. 1.

[12] Ibid., p. 8.

[13] Ibid., p. 11.

[14] Ibid., p. 20.

The state plan for implementing IGE/MUS-E focused on the differentiated roles of the SEA and TEI, the former fulfilling a coordinating function and the latter fulfilling a training function. The role of the professors, prescribed as trainers, implementors, and facilitators of IGE/MUS-E was concentrated on onsite inservice activities. The background afforded by the state plan provided a basis for the discussions with the TEI representatives.

TEI Representative A. The first TEI representative interviewed held an earned doctorate, directed an educational research service center, and maintained a close personal relationship with a number of members of the R & D Center. He described his activities and involvement with the R & D Center, SEA and LEAs. Activities conducted with the R & D Center included (1) receiving assistance in writing and funding proposals for MUS-E implementation, (2) consulting for the R & D Center, and (3) sitting on two R & D Center steering committees. He estimated that he had contact with the R & D Center by face-to-face, telephone, and correspondence at least once a week.

He described activities dealing with the funding and implementation of MUS-E planning grants as the major TEI-SEA involvement. He stated,

> During the planning grant activity we met at least once a month. About half a million in state funds goes into teacher education, about one third of that is for MUS-E projects.

He estimated that overall contact with the SEA was twice a month either by correspondence, telephone, or face-to-face.

He explained that as Director of Educational Research he had minimal contact with the schools. However, research and development proposal writing, and evaluation were conducted with schools that contracted for the services. In addition, the educational research center arranged for student teachers by acting as an intermediary with the school of education professors. The relationship between the educational research center and LEAs was considered to be enhanced by the contract requirement. He explained, "Pay as you go is better, when they pay they listen to you and you can do more things than if the services were free." He commented on the establishment of I & R Units, IIC, and SPC in the two schools visited by the researcher. The I & R Units at the two schools were considered to be adequate due to the lack of negative feedback. He stated,

> We are going into the second year of funding and we are checking into the multiunit schools and there has been no question about [School A]. They must be meeting the criteria. ...My perception is that [School B] fits this definition. They have unit leaders, staff teachers, and intermediate and primary units. The age span is about three, not five years, however.

The IICs in the two schools were considered as "functioning the way they are supposed to." Only one district, however, had an SPC, due to the fact that School B was within a district with only two multiunit schools. The respondent described the SPC in the first district as follows:

> It is policy making and decisions are made about MUS-E. There is representation from the university. Its main purpose is coordination of the university relationship. The committee has all representatives from the MUS-Es. There is very little central office representation. The Director of Elementary Education is on the committee, for a system this size that may be okay. The deputies are too high to be concerned with the nuts and bolts.

He then responded to a series of questions dealing with his role and the concerns of the TEI vis-à-vis the implementation of IGE/MUS-E. He described the coordination between the educational research center and the training efforts for IGE teachers as "indirect but effective." He stated, "We have overlapping administration through the assistant director but you know it comes down to personal interface." He estimated that he had daily contact with the dean and that "his office is two doors down." He also noted that he had "constant contact" with the various division directors within the school of education. The educational research center had MUS-E as its most important project and he perceived his role as Director of the research service center as unstructured. He explained the degree of structure as follows:

> We are sort of like a Ford dealer, we will sell 100 cars five years from now but we don't know to whom. ...General outcomes are known, specifics not known.

He estimated that 25 percent of his time was spent on MUS-E activities vis-à-vis projects coordinated by the research service center. The skills and experiences needed to perform a university based change agent role were then delineated as follows:

> You must be able to work with school systems, you must be sensitive to them and work with them in the change process. For example, a school nearby was having a problem with their IIC so we had a professor stop there every night for a month to help them out. You need people who are capable and willing to do that.

He discussed his influence in initiating an IGE focus at the university. He implied that his influence was a function of his competence and the ability to attract external resources. He stated,

> There wouldn't be MUS-E here without my influence, yet nothing would get done by me alone. Some places in [State II] have just a one man operation. Here the dean was supportive, if they [professors] were opposed to the MUS-E two years ago then they had a choice of leaving or changing their minds. (How about influence in a political sense?) Well, influence or power can't be delegated it comes from two sources, competency and the extent to which you can bring in funds. Money is very important, especially here. Without money the MUS-E program would never have gotten started.

He noted that the TEI had historically been "Incorporating innovations in bits and pieces." With respect to the initiation of TEI involvement with IGE/MUS-E, the respondent noted, "There hasn't been any other innovation that has caused the turn around that MUS-E did." He concluded the interview by outlining concerns dealing with R & D Center and SEA roles, and the field orientation and internal research ability within TEIs.

The ideal role for the R & D Center was described as "providing leadership but not direct service." He stated,

> It isn't realistic to expect them to give direct service. (What do you see as the most promising R & D Center/TEI relationship?) Well, we don't need formal arrangements unless there is money changing hands. (What do you feel the R & D Center should do to achieve some control with TEIs?) It should be informal, people should attend conferences and then they'll have sufficient information and knowledge. This in itself is sufficient control, anything more than that and they won't participate -- if you place formal control on them, that is.

He referred to the role of the SEA as funding and coordinating MUS-E projects. He described the SEA role as follows:

> Universities are the future direction. SEAs don't have the personnel nor the time. They have too many functions. There are not enough SEAs per state. TEIs are close to the schools...There are 2600 universities in the United States, much more than the 50 SEAs, 500 of these are capable of doing the job. ...SEAs should play a funding role with some coordination. (Do SEAs add legitamacy to innovations?) Yes, through the fact that they hold the purse strings. However, there are things they can't do.

He outlined the need for a strong field orientation and research capability within TEIs for successful MUS-E implementation as follows:

> Externally, universities need a close relationship with LEAs. TEIs are becoming more field oriented and they must have a strong connection with the R & D Center. TEIs are not strong R & D type places so they have to get that type of resource from someplace. Internally, you need a team approach on the undergraduate level. ...I predicted that competency based teacher education would necessarily make universities more field oriented. If you don't have it, it is very difficult to implement MUS-E. Also internal research capability must be developed and brought into connection with the undergraduate elementary education department. You know that sometimes these people in elementary education departments don't want to talk to anyone else outside their group. (So you are saying there is a need for a strong leadership and coordination?) Yes! (What do you see as facilitating the research and traditional divisions working together?) Either a strongly supportive dean and/or overlapping leadership among the departments. (Do you see this as the future direction of universities?) Yes! Not only pressure from schools but also decreasing enrollments necessitate this direction. ...A strong field orientation emphasis will eventually close the gap between theory and practice in the schools.

TEI Representative B. The second TEI representative had earned a doctorate, and was the chairman of the division for curriculum and instruction. He described his activities with the R & D Center, SEA, and LEAs. Activities associated with the R & D Center were summarized as "doing inservice and acting as a national consultant." He estimated that face-to-face, telephone, and correspondence contact averaged three times a month and he noted,

> I go to all the R & D Center's national meetings. I spent two weeks there last year. Here I've shown the initial IGE film and R & D Center Annual reports. We are sophisticated enough to do our own talking. We have listened [to the Center] enough to know what [they] are saying. (Two implementation unit members) were here to help with the proposal [Planning for a Statewide Network]. We have also sent our staff to Wisconsin to learn about IGE.

He described a number of activities involving the SEA vis-a-vis IGE/MUS-E. He stated,

> There are five state funded institutes which I helped with and we had a traveling road show for other university departments in the State. I helped write the proposal for the statewide MUS-E implementation. I am currently involved in a math proposal. The SEA subcontracts with me, or we do things together. We work with the SEA now, since IGE they have come alive. We never even saw them before this. IGE was a tool which brought us together. We both saw the need and how it could help each other. The old mistrust is gone.

He estimated that contact either by telephone or face-to-face averaged twice a week with SEA staff members.

Activities involving LEAs were summarized by the TEI representative as revolving around two leagues in the vicinity of the TEI. He explained,

> There are six districts in our league, fifteen schools. Most of our thrust is with these fifteen schools. I attend IIC meetings, inservice, and I am assigned to one school each year as a facilitator. Some schools have more than one facilitator. This is all done free by the staff. ...I am also the Kettering coordinator in this area. There are seven districts and twenty-two schools in the Kettering league. (What is the interface between Kettering and you?) We don't see a conflict. We are one of their intermediate agencies. They provide feedback--indications of how and where we are going.

He estimated that face-to-face meetings and individual conferences with IGE/MUS-E personnel averaged four times a week and ranged from twice a week to four times a day. He was familiar with the two schools visited by the researcher and he commented on the I & R Units, the IIC, and the SPC for the two schools.

I & R Units, according to the R & D Center's definition, were not considered established in School A. He explained the reasons for the fundamental adaptations as follows:

> They have two teachers per unit, therefore a qualified no is necessary. The three-to-four year age spread is more like two years. (Why?) They are doing the most effective job individualizing now so there isn't a need for enlarging it. ...The principal and university have not pressed for it and therefore they haven't changed.

He commented that the I & R Units in the second school were established for upper grades with three-to-four teachers per unit.

The IIC was considered to have been successfully established in the first school. He stated,

> I've sat in on their IIC twice and they operate within the guidelines. The teachers at the school won't change overnight because they are good now. They don't have to throw out a good reading program, they use the Wisconsin Word Attack as supplementary.

He was uncertain about the IIC in the second school. He stated,

> They may not have a functioning IIC--I really don't know. Next year, they'll go IGE. The principal there is a curriculum leader--he'll cut across subject areas.

The SPC for the district where the first school was located was considered to be different from the R & D Center's prescription. He explained as follows:

> It achieves different objectives than the [prescribed] SPC. It has two purposes (1) to maintain active connections between the university and multiunit schools, and (2) to act as a pressure group to get what is needed for MUS-E, i.e., strength in numbers. This last function is similar to the [prescribed] SPC. In a sense it puts pressure on the university. For example after each meeting I have to check out concerns with professors. I don't see the MUSTE [multiunit school teacher education] committee taking the place of the SPC. However, administrative support in the district is the same for all schools. There isn't anything extra given to MUS-E. There was about $100 per team to start but that really is nothing.

The SPC for the second district was reported as not being established since "they only have two out of thirteen elementary schools unitized." He then addressed a series of questions concerning internal concerns and characteristics of the TEI and his role.

He described as follows the close working relationship between the division for curriculum and instruction and the educational research service center, and the close relationships within the division:

> I work very closely with the center. There are no barriers. They [curriculum and instruction division] are really committed so it is easy to work together. We got rid of those who weren't in favor. (How do you work together?) We have seven professors who criticize each other for two hours a week. We have organized our staff into teams for teaching the undergraduate courses. Each semester we revise the course modules. This requires us to work very closely with each other. Our graduate program is very traditional but we will have an MA in IGE.

He followed his description of the cooperation among the curriculum and instruction staff by noting the following:

> Coordination isn't a problem because if you don't have a structure then private consulting at $150 a day can't be arranged. So you see why it is easy to set definite times for meetings and other tasks.

He estimated that communication with the dean was "at least once a day" and that the dean functioned in a manner comparable to "a principal at an IIC meeting." Subject area specialists were described as operating as teams, with each team working with MUS-Es that required specific assistance. He commented, "We go to schools on request. We work as a team. Seven to nine professors per team." He noted that his role tended toward coordination and acting as a liaison between the TEI and multiunit schools. He stated,

> Now that the teams are established I will coordinate them. ...I am out there [with LEAs] more than other professors. I am the chief LEA liaison. I actually get into the classroom.

The needs of teachers were felt as providing an overarching structure to the coordinating role; however, "brush fires" were felt to militate against the structure. He estimated that 50 percent of this time was spent on the IGE activities. He then delineated a number of essential qualities for being a successful TEI facilitator and for having a successful TEI program. He described the competencies as follows:

> You need experience in elementary education. You have to want to spend time in schools supervising students. You have to realize that you will be doing that instead of publishing. I recruit people who will be respected by the public schools not people because of their publishing. You have to stand up for a philosophy of teaching but you have to be able to compromise. Your philosophy should be compatible with IGE and it helps to have strong leadership from the dean.

He noted that the dean's influence was strong in initiating the IGE oriented thrust in the school of education. Concomitantly, the respondent felt that his influence was not significant. Historically, the TEI was characterized as uninnovative. He explained, "We have not been innovative in the past. This MUS-E program has really put us on the map. The MUS-E project is the most funding we have ever had." He concluded the interview by summarizing two issues: (1) the functions of the R & D Center, and (2) the ingredients of a successful TEI implementation and training effort. The first issue was described as follows:

> The awareness stage [R & D Center implementation strategy] is done well, the R & D Center does a good job in making people aware. They need to go further in workshops, you need two workshops not just one. In the institutionalization they do nothing. You have to realize that teachers don't call you when they need help in the last two stages. The R & D Center is inadequate [there]. You need some structure there, it isn't just a bunch of words. (What do you suggest?) They need objectives and to hold teachers accountable for achieving it. The R & D Center's sample method of feedback is inadequate. They must get out and see the schools! (How about evaluation?) There isn't any. We need evidence that boys and girls read better. They say wait two years but that was two years ago. This is damaging to the diffusion effort. You need hard facts for central administration and superintendents. They have to have hard facts, not just figures on how many less windows are broken. (Do you think the university here should do evaluation?) No, Kettering and the R & D Center are doing it. Their questionnaires aren't sufficient, however.

The ingredients for a successful TEI effort were described as follows:

> You need a committed dean and faculty. You just can't have one IGE coordinator and a graduate student. You need at least thirty professors, at least a majority and you need a power structure too. ...Student teachers are scarce and they become a real bargaining point with the schools around here. MUS-Es want student teachers because they really can absorb a lot of work plus the regular teachers know the university will take a greater interest in them. Since we put our students in MUS-Es it helps in getting more schools interested.

TEI Representative C. The third TEI respondent had received a doctorate and was the director of student field services, which focused on the placement and coordination of students in public schools in the vicinity of the TEI. He described his involvement and activities with the R & D Center, SEA, and LEAs. Consulting, proposal writing, and inservice were the major activities described involving the R & D Center. He stated, "I am the major inservice reading consultant, and I write USOE reports for all of our institutes funded by the Center." He estimated that face-to-face and/or telephone contact with the R & D Center was twice a month.

Activities with the SEA were less extensive than those with the R & D Center. He stated, "I directed two teacher institutes funded by the SEA and then there was a fall workshop." He estimated that face-to-face contact with the SEA was once every two months.

Activities involving LEAs focused on the inservice outreach of the university. He described the activities as follows:

> The schools are very close to the university. Each group of schools is assigned to a team of professors. We have a tremendous partnership with the public schools. (Why?) We realized that MUS-E had to come first, it had to come before teacher based competency. Just last week I put on eight inservice sessions. The metropolitan [Kettering] league has funded professors for inservice. When I was facilitator at [School A] I attended two unit meetings per week, I attended the IIC, I arranged for inservice from other professors, and I supervised all student teachers. When we get load credit for doing this we'll even have a better program.

He estimated that face-to-face contact with LEAs ranged from two times a day last year to three times a week this year. He noted that records were maintained for each team in order to determine the number of hours per month which were consumed helping multiunit school staff. He noted that one team spent 479 hours in February and two other teams spent 280 and 290 hours. He then described the I & R Units, the IIC, and the SPC in the two schools.

The I & R Units in School A were described as having a modified version of the R & D Center's prescription as follows:

> We don't use the term I & R Units anymore. We use primary or intermediate units. I was facilitator at School A for two years. Up until this year they had cross-aging in the primary unit. School A is there according to your definition. Grade 6 is the most IGE you'll find in this city, it is the most individualized. However, it is not cross-aged, but they only had enough money to knock out one wall. I used to think that physical arrangements weren't that important but I do now. It really is important--they can't function cross-aged otherwise. Grades 4 and 5 have problems. The principals here don't have much power in the selection of teachers and School A got a real loser. The MUSTE Committee suggested that units select teachers but it just doesn't work.

He described the I & R Units in School B as having "a long way to go." He stated, "I don't know much about it [School B]. It appears that those teachers who want to do it go ahead but I believe they have a long way to go."

The IIC at School A was described as "great"; however, the IIC at School B was described as "they are working very hard". The SPC for the district encompassing School A was considered comparable to the R & D Center's prescription for a SPC even though it was called MUSTE (Multiunit School Teacher Education). There was not a SPC in the second district due to the small number of multiunit schools. He then addressed a series of questions dealing with his role and TEI concerns.

of IGE/MUS-E as follows:

> We work together all the time. We've hung ourselves on MUS-E so we can't do without MUS-E schools. We have to work together... . Power to coordinate has been given to me by the dean; however, a lot will depend on the informal organization.

He noted, "I communicate more with the dean lately--two-three times a week. My office is closer to him now." He described a high degree of specialization among the TEI staff in terms of assisting with the inservice training of IGE/MUS-E personnel. A self-imposed role structure was described and he commented, "I need a structure but it isn't superimposed." A full-time commitment to IGE/MUS-E was estimated, i.e., 100 percent of his time was spent on IGE/MUS-E activities. He outlined a variety of skills and experiences for successfully fulfilling the role of coordinator of student field experiences as follows:

> Experience in the public schools is crucial. If you don't then you are whistling in the dark. The schools must be ready to accept MUS-E teachers. Faculty teaching, and a curriculum and teaching background is better than a research background. Most of all you have to be familiar with the schools. I've lived all my life here, taught here, and got my degree here.

He felt that the TEI "has been traditionally innovative and agressive." He then outlined three issues critical to IGE/MUS-E implementation and the outreach of the TEI. A political issue was raised with respect to student teachers being placed in multiunit schools. He described the issue as follows:

> I coordinate all of the student teaching activities now. You know this becomes a very touchy situation because we only place our student teachers in MUS-Es so other schools begin to complain plus the union doesn't like the program. (In what way?) Well, teachers don't want to transfer from their school if it goes MUS-E so they are making it an issue with the union. The contract says there will be no unilateral transfers so this gets pretty sticky. The university is, of course, involved. It is a highly political issue with our student teacher policy and university membership on the MUSTE committee.

He outlined a second critical issue dealing with the orientation of the

TEI-IGE/MUS-E program as follows:

> You need many conferences and workshops in order to develop staff expertise. You must have a close relationship with the public schools, commitment for innovation, and individualized education, and you need community involvement. A graduate education program helps because that acts as a means of inservice, i.e., teachers working on graduate degrees are motivated because of the salary increases.

A third issue was introduced which focused on the significance of unit leader salaries. He stated,

> The ball game rests on getting the unit leader in at a higher salary. You need a commitment by the school system in terms of money.

County Agent. A third mediating system representative, the county agent, was also interviewed in State II. The county agent expressed strong feelings toward the R & D Center and the SEA. He stated,

> It is much better to work with a university than with Wisconsin... . I have a feeling that the design isn't as sharp as the first few years. The people at the workshop [I attended] were overly theoretical. They were very evasive, they never answered any of the questions. We didn't even get information about previously implemented schools. I'd like to see the Center have more cohesiveness or more direct information given to the public. They don't even answer any of our letters. I requested pamphlets that never came. They stirred up a lot of people but never did anything to follow up. They should be clear about their intentions of help.

He also expressed dissatisfaction with the SEA as follows:

> I am not too happy with the SEA, they have tied in Individually Prescribed Instruction with MUS-E. I don't think the SEA coordinator really knows what IGE is. (Do you think state departments should conduct inservice?) The university does, Wisconsin does, and they both charge. The SEA will do it free but they really aren't involved with the schools. They go around and stir up schools and then leave them. They get them running before schools are crawling. They get little fires going on all over the place.

He noted that the TEI had its own interpretation of IGE. He remarked,

> They have their own materials on differentiated staffing and multi-disciplinary study. I don't know much more than that. You know each university takes on its own interpretation of IGE, it isn't pure.

He described his activities with multiunit schools as visiting classrooms, attending IIC meetings, and general consulting. He described the I & R Units and the IIC in School B as follows:

> They don't use any Wisconsin material here. All the teachers teach all the subjects. That is really better because otherwise it will deteriorate into departments. I don't see [School B] as being significantly different from what the Center says....

The county agent described the IIC in School B as follows: "It functions well; I sit in once in a while." The union was then introduced as being a critical issue. He stated,

> A real issue here is the union, they may make MUS-E a real hot issue. They may demand that the extra money being spent on MUS-E be used for teacher salaries in the whole district. ...I think the unit leaders get extra release time and extra pay now.

The mediating systems identified needs and issues related to the R & D Center implementation strategies, SEA coordination procedures, and TEI field outreach efforts. R & D Center awareness sessions were considered effective; however, subsequent workshops and maintenance functions were felt to be insufficient for assuring successful implementation of IGE/MUS-E. Evaluation and hard data were noted as being essential for the diffusion of MUS-E and therefore, the lack of R & D Center evaluation data was asserted to be hindering implementation and LEA commitment. The SEA was perceived as a coordinating agency with explicit role expectations. A representative from an intermediate agency stated that the SEA was ineffective. The significance of a TEI field outreach orientation was stressed by TEI representatives. The placement of students in MUS-Es was considered as a positive factor in implementing multiunit schools along with graduate programs in IGE/MUS-E. User system respondents expanded upon these statewide concerns by focusing on building-wide problems, and in some instances provided contradictory views of the diffusion of IGE/MUS-E.

User Systems

Two multiunit schools were visited in State II. The first MUS-E, School A, was located within walking distance of the TEI. The second MUS-E, School B, was located in an adjacent school district. Both schools were surrounded by well maintained homes characteristic of upper middle class neighborhoods.

School A

The first MUS-E, although in good repair, was approximately thirty years old. Wire gratings on the windows and doors and signs instructing visitors to secure "hall passes", characteristic of inner city security measures, were noticeable throughout the building.

The Principal. The thirty-five year old principal had earned a master's degree in educational administration and had been a principal for six years. He outlined his involvement with the R & D Center, SEA, and TEI. His initial involvement and subsequent contact with the R & D Center were described as follows:

> I first saw IGE when I went to Wisconsin. I visited a school there and I was kind of intrigued with it... . We got some money and [one of our teachers and a TEI professor] put on the inservice training. I leave it to them to do the inservice. I've been to a few Center workshops--word attack and two others. They were about a week, one for three days. I can't remember the others. They must not have had much of an impact.

He estimated that face-to-face contact with R & D Center personnel averaged once a year. Activities involving the SEA were described as minimal. He stated, "They have been here twice in three years. They don't want to know, nor do they have time to know what we are doing."

Activities involving the TEI were described as follows:

> Wow! They have done all the inservice and implementation. With the help of two professors we made a movie for I/D/E/A... and we have written a pamphlet. The university has been involved closely with our school. They mostly do inservice. Three professors sit in

> on IIC. The first year they did more than now. They also supervise all the student teachers. They used to teach their method classes right here in the building. The biggest thing is the inservice work. Teachers must attend at least one inservice session each quarter. The professors help arrange for our teachers to visit other schools.

He estimated that face-to-face contact with the TEI was three times a week. The I & R Units, the IIC, and the SPC were then described.

Physical arrangements and the rotation of the unit leader position were noted in response to the question concerning the establishment of I & R Units. He stated,

> We have second grade kids mixed in with first and third but our physical facilities have hindered us. We haven't done any cross-aged grouping... . I've found that the teachers are happiest if they all do some rotating [of the unit leader position], then the teachers don't get godlike. They see the unit leader's role as sharing.

The IIC was described in terms of the issues discussed and the attitudes of the teachers. He described the IIC as follows:

> The IIC meets once a week for one hour. Last year we spent the whole year on grade cards. We studied the behavioral objectives being taught and worked them into the grade card. Now we are establishing instructional objectives as criteria for moving kids into the next level. The unit leaders are willing to try new things. Most are usually hesitant but these teachers are unusual. They come here to learn something, not just complain.

He clarified the question concerning the establishment of a SPC for the district by noting that there was a subcommittee of the MUSTE committee called the policy planning committee. He explained,

> They [policy committee] don't make many decisions. It's mostly a sounding board for the system. They may make some minor decisions. If nothing else it is worthwhile for principals and teachers to get together. For the university it is good public relations, you know--playing up that professors are there.

A series of questions dealing with his role and internal characteristics and concerns of the school were then addressed.

He explained that his involvement with the teachers in the school had changed during the implementation of IGE/MUS-E. He also noted that central office involvement, although comprehensive, was unrelated to IGE/MUS-E. He stated,

> I work very closely with the central office, ... upgrading instruction and budget. (Anything concerning MUS-E?) No, not directly. (How closely do you work with unit leaders?) Now, very little, but at first I worked with them a lot. The staff has been here since the beginning so I don't have to sit in on unit meetings. It just isn't necessary. It isn't hard for teachers to make decisions, as first it was. They didn't know how far they could go, now if they aren't sure they come to me.

He estimated that he communicated with the director for elementary education three times a week and that he spoke with the superintendent twice a year. He described the lack of specialization among teachers and his revised role as principal as follows:

> The teachers are good in everything so there is no need for specialization. (Have you delegated anything to unit leaders that you used to do?) Yes, curriculum. I tell them to change the curriculum wherever they want. Prior to this the central office dictated. Now I don't get involved. I am more of an educational leader now. I am hardly ever in the office.

He perceived his role as being structured but with gaps, he stated, "I just play it [role] by ear." He estimated that 80 percent of his time was spent on MUS-E activities. He then described the skills and experiences needed to be an effective IGE/MUS-E principal as follows:

> I don't think you need specific skills. You need to know your staff, your program and your families. You need good common sense to construct educational programs.

He did not perceive himself as politically influential; however, he did describe himself in terms of influencing teachers to implement MUS-E. He stated,

> At first we had teachers volunteer for MUS-E and then I got them involved. This made them aware of what was going on. My influence is that of a facilitator, not influence in a political sense.

He described the previous principal of the school as not being interested in innovations. He remarked, "I wanted to do something different...it comes down to the initiative of the principal." He concluded the interview by outlining four critical issues: (1) unit leader rotation, (2) union barriers, (3) decentralized authority, and (4) R & D Center practices. The unit leader positions in School A were described as being rotated among unit teachers as follows:

> There is no feeling by the teachers of being left out because everyone has been a unit leader. The IIC decided to revolve the unit leader position. There is no money, release time, or other status for the unit leader.

The union was then noted as a barrier to IGE/MUS-E as follows:

> The union wouldn't tolerate release time for unit leaders. You just have to have the guts to fight them. (How does the union get involved?) Well, we have to live within the contract, if you can pull something off, then good for you. They don't differentiate between non-MUS-E and MUS-E in the contract. The unions are a major problem.

The need for decentralization of authority was explained in terms of the principal's role as an educational leader. He stated,

> First the building principal must be given authority. The central office must have confidence in him. He must be given authority over the building budget, everything from substitute teachers to toilet paper. You must be given the okay to get out into the community and get support.

He concluded the interview by commenting upon the need for experiencing IGE as follows:

> I have no complaints about the R & D Center but you got to do IGE to learn it, you can't rely on reading only. Our teachers don't need a lot of inservice but other schools do. (How about evaluation?) The center is weak there. Another thing Wisconsin should do is take a closer look at our district. They haven't been out here to see what is going on, you only hear about Wisconsin schools.

A more detailed, and in some instances, contradictory description of the operating characteristics of IGE/MUS-E were provided by the unit leader.

The Unit Leader. The unit leader had held the position for three years, had earned a master's degree, and was chairman of the MUSTE committee. He described his activities and involvement with the R & D

Center, SEA, and TEI in terms of his position as unit leader as opposed to his position as chairman of the district-wide MUSTE committee. He stated,

> As sixth grade teacher I am doing nothing for the R & D Center. We'd like to use their reading skills but we don't have the money. It is being used in the lower grades along with DMP. The sixth isn't using anything from the Center except publications about IGE. (How about awareness workshops put on by the Center?) We do that once a year at the university. I am not sure whether there is anyone from the Center there. It is through the university and MUSTE that I became involved with the R & D Center.

He considered films and materials to be the connection with the R & D Center. Activities with the SEA were reported to consist of two visitors and an OCDQ questionnaire. However, contact with the TEI was described as extensive. He stated,

> We have their student teachers. All the MUSTE schools are involved in training students in method courses. We also get some freshman students as clerical or instructional aides. The professors will do any kind of inservice we want. They will get any material we want, they are excellent. We use substitute teacher money to go to inservice or for consultation. Before the $80,000 grant, [given to the league] the district gave us half a day for inservice. (What is the extent of inservice?) The grant has money for one professor. We have three professors at half and quarter time...they come to the IMC every Friday to put on inservice for teachers in the league. I've been to ten but I am an exception. We don't have to use substitutes in the sixth grade.

Including MUSTE activities, the unit leader estimated that he had face-to-face contact with professors five times per week.

He described the I & R Units, the IIC, and the SPC. After reading the definitions for the I & R Units he replied,

> Only in the primary unit are we cross graded. (Why?) Last year the fifth began team teaching, this year the fourth. This is the reason for not being cross graded. We kind of talk about it informally. The teams haven't been at the same level of development and the other reason is the building. The sixth grade is isolated. The sixth is unitized only for the sixth. It isn't an ideal situation. It is a real problem in an older school. Even if we had all the middle grades near each other, we'd be better. We'd like to do some cross grading--maybe next year.

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He described the IIC and the issues discussed as follows:

> We discuss the criteria for moving from level to level, how to handle visitors, concerns from the teams, reporting systems, materials, IMC, and the workshops. Inservice is a big problem, especially for those who don't want it.

The MUSTE committee was described and its policy limitations were noted vis-a-vis the definition of an SPC as follows:

> The MUSTE committee meets once a month and is composed of the nine MUS-E principals, unit leaders, director of elementary education, and from one to five professors. I am the chairman. We talk about organizing MUS-E, providing inservice, university programs and curriculum. We wrote a proposal for federal funds for the Metropolitan League. We are now a subcommittee of the league. It [league] is composed of six districts and a parochial school. We got $80,000 which is used for an IMC, release time, and consultants. There are six votes for the six districts, each superintendent. The MUSTE doesn't set policy, we have no authority to do so. We have good cooperation but there are only nine MUS-E on MUSTE and there are forty schools in the system. The league sets policy. They have the power to do it.

He then described a number of internal concerns ranging from his role to concerns of the school as a whole.

He described a close relationship with the principal and the sixth grade unit teacher as follows:

> I work closely with the principal, we talk about the unit, the school, the district, and the league. Since there is only one unit teacher in the sixth and since we knocked out the wall, we are in the same classroom so I work closely with him. I see the other unit leaders once a day.

He estimated that he spoke with the principal twice a day. He then described specialization within the unit in terms of art and physical education. However, in reference to all other subjects he noted, "We do the same thing at the same time in groups." In reference to his role as unit leader he stated,

> It is kind of difficult sometimes to work closely [with the unit teacher]. I am the unit leader only because I have more experience. (Would you say leader is an appropriate description?) No, executive teacher is a much better term, less upsetting connotation that way. There is no extra stipend or release time.

He asserted that he spent 100 percent of his day on IGE/MUS-E activities discounting art and physical education. The skills and experiences needed to be a successful unit leader were delineated as follows:

> Enthusiasm and willingness to put in extra time--if you aren't willing then forget it. If you are satisfied to be a lazy teacher then forget it. If you have a new teacher you must be willing to make personal commitment regardless of time and energy. (Do you have a say in the teacher?) Yes, because of our principal.

He perceived himself as having influence within the school. He stated, "You have to sell them and keep them sold." He noted that the school had traditionally been conservative along with the entire district. He explained as follows:

> It was very static, conservative, a place where teachers want to transfer before retirement. The district is one of the most backward systems I've ever heard about. It is going down hill all the time. There are only nine MUS-Es and one school has been on it for three years but only has one unit.

He concluded the interview by outlining two critical needs: (1) teacher willingness to implement IGE/MUS-E, and (2) lack of evaluative, administrative, and union support of IGE/MUS-E. The needs were outlined as follows:

> You can't be forced to be MUS-E. There are two teachers who didn't transfer three years ago, but you don't have to be MUS-E according to the union contract. They say there isn't any proof. You know it is a lot easier to close your door and do your own thing. (Do you think there should be more evaluation?) I don't know how they can be fair to everyone. If the results don't show the kids doing better they may drop MUS-E. The administration is now saying if you want to change things, then try, but there is no follow up or direction from central administration. ...No one in central administration knows what they are doing. If teachers aren't involved then it is all talk and no action. The only reason this school is the best MUS-E is because the university is right here. (Is there Union support?) No! The union doesn't support anything but the union. They are only welfare minded.

The unit teacher in School B provided a more limited and less critical viewpoint of external involvement and building-wide concerns.

The Unit Teacher. The third interview conducted in School A was with a unit teacher who had earned a bachelor's degree, had been a unit teacher one year, and had been a unit leader for three years. He described his activities and involvement with the R & D Center, SEA and TEI.

The only activity with the R & D Center was reported to be a workshop at the university which had R & D Center personnel present. An interview with a SEA consultant constituted his contact with the SEA; however, a more extensive series of activities were described vis-à-vis the TEI. He stated,

> Student teachers are the most important feature of our contact. We've worked with professors and the student teachers. There are workshops every Friday.

He estimated the frequency of face-to-face contact with professors as once a week, with the SEA as once in two years, and with the R & D Center as once in three years. He described the I & R Units, the IIC, and the SPC in School A.

The I & R Unit for the primary grades was considered to be established. He stated, "We are beginning, we have a three year span in the primary unit, and we have student teachers." The IIC was considered to be established and being called the MUSTE. He then addressed a series of questions dealing with his role and internal concerns and practices in the school.

Working closely with the unit leader was described as necessary. He stated, "If you don't work close you may as well not do it [IGE/MUS-E]." He observed, however, that as a unit teacher, it was not necessary to work closely with the principal as that was the unit leader's responsibility. Communication with the unit leader was described as frequent and communication with the principal was described as inadequate. He stated,

> I frequently communicate with the unit leader. You can't have an ego here because your idea becomes everybody's idea. (Is there recognition?) Not outside the team. (Is this bad?) Yes, for some people. This is especially true with student teachers who are working on grades. They are very competitive. (How often do you talk with the principal?) Once a week, I'd like to talk to him more often but there isn't time unless the unit leader were to trade off at the IIC.

He explained that there was no subject matter specialization within the primary unit but that there was skill group specialization. He noted, "In social studies you may have three groups so you do the same thing three times. This isn't very often." He described his role in terms of overall district structure as follows:

> There is a definite structure but we do have flexibility. There are some things that aren't workable. (What?) They give the Metropolitan Math Test here and we use DMP. The tests don't measure DMP so we had to reschedule our program to regular math just for the tests. There is structure. We each have our job and we know what it is.

He estimated that 100 percent of his time was spent on IGE/MUS-E. He noted, "the only difference from before is that you are working with other people so you can do more things." He outlined the skills most needed for being a successful unit teacher and he noted that the community influenced the behavior of teachers as follows:

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> The most important thing is to get along as a team, be even-tempered, and have a sense of humor. Teaching skills and methods are basic. (Do you see teachers making more decisions?) Yes, but only in our classroom, the principal is the major control. (Do you see this changing?) Yes, but parental pressure is put on the principal. They need to be made to understand MUS-E but since they've been in regimented schools, especially parochial schools, it is hard for them to accept MUS-E.

He felt that he had influence within the unit but not within the school. He noted that the district was "trying to be innovative" and that IGE/MUS-E was the first innovation with which he had been involved. He concluded the interview by explicating a major need for successfully operating IGE/MUS-E as follows:

> You must build the staff so they work cooperatively together. If you can show it helps children, then you can get to teachers. (How do you know whether it is getting to children?) By their attitudes toward school. (Do you feel there should be more evaluation?) Yes, in all school programs.

School A had minimal exposure to the R & D Center and the SEA, however, it had had extensive involvement with the TEI. Physical barriers, union antagonism, lack of evaluation and the need for group compatability were mentioned as critical needs. The second school provided a different perspective of external involvement and critical problems and they described different needs.

School B

The second school was located in an affluent suburban neighborhood. The school was approximately ten years old and lacked the wire grating on windows and no trespassing signs on the doors which were found in School A. Interviews were conducted with the principal and a unit leader. A third interview scheduled with a unit teacher was cancelled due to the principal's fear that the interview would exacerbate the delicate labor/management balance within the school and district. The teachers had remained away from school the previous day and rumors of a teacher strike had unnerved the administration.

The Principal. The thirty-four-year-old principal had earned a master's degree and had been a principal for three years. He stated that he planned to continue as a principal as the position was the pinnacle of his career. He described his activities with the R & D Center, SEA, and TEI.

Activities with the R & D Center included the attendance at a reading workshop and the use of R & D Center materials. He described the workshop as follows: "Confusing. They tried to cover too much....We haven't had any other contact from them. I'd like to visit them." He estimated that he received material from the R & D Center once a month. He described his involvement with the SEA as "really nothing." However, he mentioned that he had attended a workshop sponsored by the SEA. Face-to-face contact with the SEA was estimated to be once a year. Activities with the TEI were considered to be extensive. He stated,

> We get our student teachers from them, we are in a league that meets once a month to talk about how to evaluate student teachers. The university gives very good responses and help. Anytime I have a problem they'll come right out. Anything I ask for I usually get. We are getting much better feedback, sharing and help than we ever got from them before. They are developing a MUS university. A facilitator comes once a week. He even came one night to one of our student programs. Last year he put on inservice, he visits classrooms, sits on the IIC, and he gives us information from the university.

Face-to-face contact with the university was estimated to be twice a week. He then described the I & R Units, the IIC,and the SPC.

The I & R Units were described as being established for grades four and five, and grades six and seven. The primary grades, K-3, were still operating as self-contained classrooms. He explained that cross-grading was done only for math in grades six and seven. He commented on the implementation of the I & R Units and the lack of additional compensation for the unit leaders as follows:

> We all follow an agenda. We are trying to follow a structure. We hope it corresponds to the design. You know I see IGE as a management program that can be interpreted in different ways. (Do the unit leaders receive extra pay?) No, but we may do away with department chairmen and give them the extra money. Release time is worked out with the unit if they can. There isn't any set time.

He described the IIC, its members, and the issues discussed as follows:

> We discuss curriculum, student problems, testing, directions we may be taking.... We discuss what the units are doing. This is good because in the self-contained classroom everyone closes the door and you never know what they are doing. When you are working with three people you have to open up.

The SPC was described as just having been established. He stated, "We discuss policy, not set it." Two MUS-E principals, a principal involved with IPI, the assistant superintendent, the director of elementary education, and the principal from the senior high school were reported as constituting the members of the SPC. Internal concerns were then discussed in terms of his role and the needs within the school.

He described increased involvement with teachers since MUS-E had been implemented. He stated,

> I try to work very closely with the unit leaders. I like to be creative and do things with the teachers. I feel I am more involved than ever before. (How about central office staff?) There isn't much involvement with them. I feel they are in favor of MUS-E,however.

He estimated that he spoke with the elementary education supervisor daily, the assistant superintendent twice a month, and the superintendent "very seldom." He described a degree of specialization among the teachers and a greater degree of sharing within his own role as follows:

> One teacher may tend to specialize a little in one area and take many groups but they all really teach the basic courses. I have more sharing now. I am a lot busier but it is a good type of busyness.

He described the structure within the school as fulfilling a need for stability by students and as enabling increased productivity of the units as follows:

> We expect specific things from our program. We try to work at the productivity of the units. We used an evaluation questionnaire from School A and we polled the students and parents. We can also pick out problem children easier now since there are three people observing. Some kids like more structure than others. We've visited some MUS-Es that are too chaotic. Our kids need more structure. (How about the open classroom idea?) There is no desire to knock out the walls here!

He estimated that he spent 75 percent of his time on MUS-E activities and he commented, "sometimes this is too much." Skills and experience needed to be an effective IGE/MUS-E principal were delineated in addition to the positive features of IGE/MUS-E. He explained,

> You must be flexible, have the ability to work with others, the community. You must be creative and look at the whole picture instead of a fragment. (How about decision making skills and teachers?) The unit leaders are making more decisions now. It is a fine line because they look to you for decisions sometimes. I see the unit leaders as needing as much flexibility as possible. I am a neutral person viewing the program who can give help when needed. I try to get the unit involved. I let them make a recommendation. We try to come up with a mutual decision. They ask me when there are important decisions. They don't just go out and do something. I like this best about IGE, the sharing.

He assessed his influence within the school as "quite a bit." He also noted that within the district, "We are looked on as the best elementary school." The fact that no one transferred from the school and that there were many visitors were considered to be indicators of his influence. He noted that the district and the school "haven't been innovative in the past." He also explained, "I don't think we jump on many bandwagons"; however, IGE/MUS-E offered something "we didn't have before, it gives something to kids and teachers."

He concluded the interview by delineating two needs and one issue: (1) continuous outside involvement, (2) evaluation, and (3) jealousies caused by aides and student teachers. He explained as follows that the allocation of aides and student teachers was a significant issue: "There are jealousies too, like why should you get these aides and student teachers?" The need for continuous involvement by the TEI and R & D Center was stressed as follows:

> Continuous involvement by the university is necessary, paid aides and student teachers, space, inservice, and lots of sharing are all important. If we had a source to go to for information it would be great instead of doing something like lesson plans all over again.

> I'd like to see more sharing with the R & D Center. More feedback is needed from them. I'd like to see more information because I am sold on the program.

He concluded by referring to the need for evaluation as follows:

> They are just starting to evaluate the program. This is a concern of parents, is IGE better? The Center has been saying that kids may gain a year over the duration of the program. Non proponents can't be forced to like MUS-E. Once they see how you get aides, student teachers, and lots of help they begin to get interested.

An abbreviated interview with a unit leader in School B was conducted and it augmented the general descriptions provided by the principal.

The Unit Leader. The second interview conducted in School B took place informally with a twenty-four-year-old unit leader. He had earned a bachelor's degree and had been a unit leader for six months. The interview was prematurely terminated by the principal for fear that it would contribute to teacher antagonism. However, the unit leader reassured the researcher that there was nothing unusual or critical in the school and that the administration was "over reacting." He described his activities and involvement with the R & D Center, SEA, and TEI.

The R & D Center was referred to as follows: "We are just beginning to become involved with them in reading. Other than that we have very little contact." He reported no involvement with the SEA but he described extensive involvement with the TEI as follows:

> We've had unit leader workshops, reading workshops, we are members of a group of multiunit schools in the area. The schools meet once a month to discuss problems about student teachers. The university will offer any assistance we need, they help with just about anything. At the monthly meeting we find out what others are doing, their problems.

He estimated that face-to-face contact with the TEI was once every two weeks.

The I & R Units, the IIC, and the SPC were then discussed. He felt that I & R Units had been partially established, the IIC was relatively strong, and that the SPC was an unknown. He addressed a series of questions dealing with internal concerns.

Extensive coordination was described for his unit as follows:

> We meet three times a week for thirty minutes during the day and sometimes at lunch. Three to four hours each week we plan together. We really don't have time during the school day. We do work together closely.

He estimated that he spoke with the principal once a day. He projected a greater degree of specialization in the future "once we get totally unitized." He noted that skill grouping was being conducted in reading and math and he estimated that 50 percent of his day was spent on IGE/MUS-E activities. He outlined a number of skills and experiences needed for successful implementation of IGE/MUS-E as follows:

> You should be an experienced teacher, having knowledge of MUS-E prior to being a unit leader, and you should know what a real MUS-E is, not one of these half and half MUS-Es. It seems that just as soon as teachers start talking to one another they think they are a multiunit school.

He delineated two needs that were critical for implementing IGE/MUS-E: (1) planning, and (2) external support. He stated, emphatically, "planning before implementation is essential." He also noted,

> We need more support, however, from the university in terms of supervision. There isn't any carry through from the assigned facilitator. ...Many of the university people have never really worked in a MUS-E, or an elementary school. This makes things difficult. They admit this, but they don't try to get help.

School B had achieved partial unitization and it was receiving assistance and support from the TEI. Additional support and evaluation were noted as being needs. In addition, one respondent commented that TEI facilitators should have practical experience in MUS-E prior to fulfilling a facilitating role. (This need was also noted by a number of user system respondents in State III.)

In summary, the resource system was reported to have had minimal contact with mediating and user systems within State II. Mediating system representatives, however, reported considerable resource system contact at the R & D Center. Implementation workshops and inservice sessions conducted by the resource system were minimal in comparison to activities performed by the TEI. Implementation activities of the SEA were administrative in nature and they accounted for very little of the overall State II inservice effort. The TEI was reported as the major source of inservice and implementation activities. Critical needs, reported by the mediating and user systems, were: R & D Center and I/D/E/A cooperation, evaluation, load credit for TEI staff for field services, union cooperation, greater TEI-LEA supervision, and planning and released time for unit leaders. Two of the above needs were also identified by respondents in State III. However, there were a number of major differences in the organizational relationships within the State.

State III

A brief overview of State III includes consideration of (1) the contracts between the R & D Center and the SEA and TEI, and (2) the number of MUS-Es established. In June, 1972, the R & D Center contracted with the SEA to maintain 147 IGE/MUS-Es and to establish 40 new multiunit schools. Maintenance activities were supported by $28,000 and the implementation activities for the estimated 40 new MUS-Es to be established between June, 1972 and February, 1973 were supported according to a Financial Assistance Formula.[15] The TEI in State III agreed to offer and conduct two one-week institutes for 50 lead teachers during the summer and fall of 1972. Support from the R & D Center for the institutes was $7,500.[16] There were 147 Multiunit schools in State III in 1971-72.[17] By the 1972-73 school year there were 215 MUS-Es established.[18]

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[15] Memorandum of Agreement, Wisconsin Research and Development Center for Cognitive Learning, June 8, 1972. Financial Assistance Formula is presented in Table 6.

Interviews were conducted with the SEA state coordinator for IGE/MUS-E, three representatives from the TEI, and three principals, two unit leaders, and two unit teachers from three multiunit schools in the vicinity of the TEI. Interviews with members of the implementation unit at the R & D Center revealed a diversity of involvement with MUS-Es, SEA, and TEI.

Resource System

Members of the implementation unit of the R & D Center described their activities and involvement with the SEA, TEI, and three LEAs selected for study in State III. Activities conducted with the SEA included assisting in workshops, working on IGE/MUS-E materials, training coordinators, and maintaining membership on a SEA-R & D Center committee. In addition to these activities, the overall nature of the R & D Center-SEA relationship was described. One member noted, "As far as the SEA is concerned I have assisted them in workshops, working on materials, and training their coordinators." A second staff member reported, "I've worked with the SEA over three years ago. I was a member of a joint committee and I've participated in conferences they sponsored." A broader viewpoint was reflected by a third staff member as follows:

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[16] Memorandum of Agreement, Wisconsin Research and Development Center for Cognitive Learning, June 27, 1972.

[17] 1971-72 Directory of IGE/Multiunit Elementary Schools in the United States of America, op. cit.

[18] IGE/Multiunit Elementary Schools 1972-73 Directory, op. cit.

> Their relationship with us is more of a personal thing... . When the coordinator took over they didn't know where to go but they worked with one of our staff members very closely. They haven't done much of a job, however. They don't take advantage of what we have learned over the last two years. They are still using outdated materials. [State III] is the weakest state in terms of implementation. They are concerned with quantity not quality. Since we sample 20% of the schools each year we ran into a problem in State III. The coordinator wasn't much help in picking the schools.

A fourth staff member asserted that the TEIs were more productive than the SEA. He stated,

> Before the national implementation effort we had a strong relationship, it was productive. In 1971 when we got implementation money they tied up with I/D/E/A. The commitment to MUS-E rapidly deteriorated, for example their use of staff people. Of course this is their priority. At this point in time there isn't any one directing their IGE effort. As a result our strongest and most productive relationships are with the TEIs. A couple of them are very strong.

Face-to-face contact was described most often by the implementation unit staff as the major means of contact between the R & D Center and the SEA. The frequency of the contact varied from once a week to five times a year.

The activities and involvement between the R & D Center implementation unit and the TEI were diverse. One staff member noted that he had had no contact or involvement with the TEI while another member stated,

> The TEI has had a very close contact with the Center since they are one of the first universities to be associated with MUS-E. I have gone up there and they have come down here. We stay in close touch.

A third implementation unit member replied, "I haven't really worked with the TEI." The overall TEI effort was described as "strong" by one staff member as follows:

> The TEI has done quite a bit. The same model is used, awareness, and one week institutes for experienced people. The TEI is strong because they put on these institutes for a national clientele. They helped in preparing other people to do one week institutes and they help LEAs whenever requested.

Face-to-face contact was described by the implementation unit members as

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the primary means of contact with the TEI. The frequency of contact ranged from twice a week to none. The activities of the implementation unit with LEAs in State III indicated a comparable degree of involvement as with LEAs in the preceding two States.

Onsite visits were mentioned by two implementation unit members as the major activities conducted with LEAs. Inservice workshops and visits in response to specific requests by LEAs were also noted. One member stated,

> As far as the LEAs are concerned it's fairly similar to the contact I have had with other states. I have visited them, put on inservice workshops, and been on call for any special problems or needs.

A second implementation unit member responded, "I haven't worked with any local schools in any state." A third implementation unit member described onsite activities with MUS-Es. Face-to-face contact was described by all the members as the major means of contact. Frequencies ranged from fifteen times a year to no contact. The members then described the I & R units, the IIC and the SPC for the three MUS-Es visited by the researcher.

None of the implementation unit members had visited the three schools selected for the study. However, two staff members conjectured about the establishment of I & R units and that all three schools probably had IICs. The SPC was considered established in that the performance objectives stipulated a SPC. Kettering's involvement, however, was mentioned as a possible inhibiting factor to the establishment of MUS-E since confusion over performance objectives could arise. Affiliation with the TEI was considered by most members as militating against dysfunctions associated with Kettering. However, one staff member felt that the establishment of I & R units, and IIC was "problematic" but "they probably have units," and he added, "for some reason I don't trust the situation" [in the area of the TEI].

In summary, some of the implementation unit staff reported dissatisfaction over the involvement between the R & D Center and the SEA. Kettering's involvement, poor use of materials, and difficulties in selecting schools for onsite visits were noted as hampering the implementation of IGE/MUS-E. Close contact with the SEA was reported by a number of implementation unit members. Involvement with the TEI was more varied than with the SEA. Assisting in workshops, consulting, and working together, characterized the R & D Center-TEI activities. Involvement with LEAs appeared to vary from none to ten times a year. Workshops, onsite visits, and general consulting were described as the major activities. Table 9 delineates the frequency of face-to-face contact between implementation unit members and SEA, TEI, and LEAs in State III.

TABLE 9

ANNUAL FREQUENCY OF FACE-TO-FACE CONTACT BETWEEN RESOURCE SYSTEM AND THE SEA AND TEI REPRESENTATIVES IN STATE III

Implementation Unit Members	Mediating System SEA	TEI	Total
A	6	6	12
B	9	9	18
C	5	3	8
D	26	30	56
E	6	0	6
Total	52	48	100

Travel vouchers from the R & D Center also indicated a varied frequency of contact with agencies in State III. Excluding travel time, members of the implementation unit spent 37 days between April, 1971, and June, 1973, with agencies in State III.[19] The number of days per member varied from none to 23, the average number of days was 7.2.

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[19] Travel Voucher, Wisconsin Research and Development Center for Cognitive Learning, April, 1971 - June, 1973.

Mediating System

The SEA coordinator for IGE/MUS-E and three representatives from the TEI provided contrasting views of the R & D Center and they reflected different perspectives with regard to implementing IGE/MUS-E.

The SEA.--The state coordinator for IGE/MUS-E had earned a master's degree, and had been involved with IGE/MUS-E for six years. Activities with the R & D Center over the past six years were described as follows:

> I had a joint appointment so at first I spent 50 percent of my time there. I found test schools, worked closely developing IIC objectives, and I worked on product development and implementation. I helped arrange and participated in workshops and conferences. I was able to use my position in the SEA to help get the design into various schools....I follow up on schools who may be interested in adopting the design.

He described telephone, face-to-face, and correspondence as the major means of contact with the R & D Center. The frequency of contact was estimated to be once every 2.5 days during the initial stages of IGE/MUS-E development, once a week after the initial development, and currently contact was once a month.

He described his activities with the TEI as primarily assisting in the establishment of demonstration MUS-Es and attending summer workshops for unit leaders and principals. Telephone, correspondence, and face-to-face contact were described as the major means of involvement with the TEI. The frequency of contact was estimated to have been once a week during the initial stages of IGE/MUS-E development and currently once every two weeks.

Activities with LEAs were described as stimulating interest, providing training, and working closely with administrative personnel. He stated,

> Things I do are in staff development, getting them started, or improving their program. Originally, I was supposed to provide and stimulate interest in the program. I spent most of my time with

> superintendents, principals, boards, and teachers. Once we got them to look at new ideas we provided the leadership for continuing the program, we maintained the staff development and shared information on state and national points of interest. However, my role will probably change as colleges provide training. We will probably work closer with the administrative staff, central office and university people.

He estimated that face-to-face and telephone contact averaged once a week during the initial stages of IGE/MUS-E development to once every two days during the current school year.

The SEA coordinator described the I & R Units, the IIC, and the SPC for the three schools visited by the researcher. He had visited one of the schools (School B) and he had been involved with the inservice training for School C. He remarked, with respect to the I & R Units for School B, "They assigned teachers on a unit basis." He felt that School C had units; however, he had no knowledge of units in School A. The IIC was considered to be "working well" in School C but it was considered "not functioning well" in School B. The SPC for the district which included Schools A and B was described as deviating from the R & D Center's definition. He replied,

> (Is an SPC established?) No, not in my estimation. They have something but not really an SPC. (Why?) The superintendent calls all the shots and since he doesn't want it to go, it doesn't.

Since School C was the only MUS-E in the district he explained that they would not have a need for a SPC as follows:

> They have fine central office support and they started MUS-E in a unique way with the 80 people attending a course on IGE being the pool from which the teachers were selected.

He reported a variety of concerns and described his role within the SEA. Internally, cooperation was described a minimal with staff members representing subject areas. However, efforts to increase interest and cooperation were described as follows:

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> I was instrumental in starting the first statewide committee on math for IGE. Since then we've worked on language arts, physical education, and music. We use both R & D Center and I/D/E/A materials. Someone from I/D/E/A came here to talk with our consultants. We are trying to get Kettering to put on a two week inservice session for some of our consultants. (You feel the consultants should be involved?) Yes, they need to know more about IGE if it is going to go. One person isn't enough. We got to involve the other people. We've had minimal cooperation so far. By and large most of the involvement is minimal.

He noted that communication with the CSSO and the administrator for the division was infrequent. However, communication with his immediate supervisor was described as "daily". He added that the CSSO "has given us pretty good support." He commented that a variety of specialists, including practitioners, had assisted in the initial IGE/MUS-E workshops but that department specialists were not involved with the onsite visitation of MUS-Es. He explained,

> We had lots of specialization for the workshops at first. We had math, physical education, art, and IMC specialists. Plus we had practitioners help which gave us credibility. (How about out in the field?) At first R & D Center people helped but now they are too busy so we suggest that LEAs bring in the practitioners. I help them do this. Within the department we have asked people to note how IGE schools are doing when they're out in the field, especially Title III Schools, but that is very minimal.

He described his role as being structured in terms of the contract between the SEA and R & D Center. He stated,

> My job is more structured than unstructured. We've had a specific contract which specifies how many schools we'll start and maintain. How we accomplish our task is less structured, but we know how many conferences we'll run. At first it wasn't as structured but then that was before the implementation model that is used now.

He estimated the percentage of time he allocated to MUS-E activities vis-à-vis three developmental stages. During the initial development of IGE/MUS-E he spent 80 percent of his time, following the initial stages he spent 15 percent of his time, and currently he spent 75 percent of his time on IGE/MUS-E activities. The skills and experiences needed to effectively perform the role of a SEA coordinator of IGE/MUS-E were then described as follows:

> You need elementary teaching experience, you need supervisory experience, you need administrative experience involved in organizing not budgeting, you need training in the concepts of IGE, and you need to be able to talk and work with people. I've been an elementary teacher, principal and superintendent. I've found it easy to carry out the different roles.

He felt that he did not have influence within the SEA concerning IGE/MUS-E but he felt that his immediate supervisor did have influence. The respondent commented that not everyone in the department was committed to IGE/MUS-E. He stated,

> (Do you feel the department has made a commitment to MUS-E?) Some have, but not all. No one argues against the concept. It is rather how you implement it that is a problem. (Has the CSSO endorsed it?) Yes, you can't ask for much more, he said it was most promising.

He assessed the innovative nature of the SEA and the state in general as "more innovative than most." He noted that the majority of the SEAs were not innovative since they focused on regulatory functions. A high degree of local autonomy was also considered as facilitating LEAs "to try new things." He concluded the interview by delineating a number of needs and concerns for improving the implementation of IGE/MUS-E. Evaluation, training, and more effective use of central office staff were mentioned as critical needs. The need for evaluation was described as follows:

> We need more reports on the evaluations that have been going on at the Center and we should get these to the LEAs. We need a system for LEAs to use to evaluate their programs. We are getting questions from boards as to whether they are functioning any better. This is something the R & D Center evaluation section should do. They should develop a model for LEAs to use to evaluate. A lot of this has been done on faith. The department doesn't have this capability.

Training needs vis-à-vis TEIs were mentioned as follows:

> The colleges need to improve their programs. If they don't then we are going to have to put on staff development programs and they are very expensive. If the teachers know the concepts of IGE before they get into the field then it reduces the amount of inservice. We need better trained building principals. If he doesn't provide the leadership then he will kill the enthusiasm of the teachers.

Better utilization of central office staff and additional IGE programs were considered by the SEA coordinator as being critical needs. He explained,

> We need to have the special resource people in the district utilized better. This calls for more development. We need more programs for teachers because they are very impatient to see IGE developed.

He responded to the issue of union support and student teachers by noting that unions have supported IGE/MUS-E and that student teachers have become a significant ingredient in IGE/MUS-E implementation practices and subsequent operations. He stated,

> (Do you see unions opposed to MUS-E?) No, I don't see how they could be. Unit leaders are getting extra money because of the union. They may object to teacher aides taking the place of regular teachers. (How about student teachers?) They really help with the IGE program. The program was originally not designed to use student teachers. Colleges got involved through student teachers; they get a better clinical experience because they work with three or more teachers. Now most schools are looking for student teachers because of the manpower needs of the MUS-Es become fantastic. It saves the district money. You don't have to have them but some districts think they can't function without student teachers.

The SEA coordinator described an evolving relationship with the R & D Center, TEI, and LEAs which was a function of the development stage of IGE/MUS-E. Initial development required closer contact with resource, mediating, and user systems. Internally, the respondent described minimal cooperation among the SEA staff. He stressed the need for evaluation, improved TEI training, and greater utilization of central office personnel in districts with multiunit schools. Three contrasting views were provided by TEI representatives. Although they shared a number of the needs and concerns with the SEA, they were much more emphatic and forceful in their replies.

The TEI.--The three TEI representatives first became involved with IGE/MUS-E at different stages of its development. The first respondent, the chairman of department of elementary education, had been involved with IGE/MUS-E for three years, the second respondent for five years, and the third respondent for six years.

TEI Representative A. The chairman described his activities and involvement with the R & D Center, SEA and LEAs. Activities involving the R & D Center included attending conferences, working on task forces, and representing the R & D Center on a national level. He described telephone, face-to-face and correspondence as the major means of contact with the R & D Center. The frequency of contact was estimated to be once a month. One activity with the SEA was described as follows:

> The only use we've made of the SEA is to make requests for consultants to come to unit leader workshops, some regular graduate classes, and a few schools.

He explained that he did not work directly with the SEA coordinator but the other two professors involved with IGE/MUS-E communicated with him by telephone, correspondence, and face-to-face. He estimated the frequency of telephone contact to be once a week and face-to-face contact once every three weeks. Activities with LEAs included supervising student teachers, conducting classes, and offering assistance. He explained as follows:

> In the student teacher program we try to give priority to placement in MUS-Es. We have classes in IGE at the grad level which are both on and off campus. And we have workshops and drive-in conferences. (Do you consult with MUS-Es?) Only if they call, but they never call. We don't force ourselves on them. (Why don't they call?) Defensiveness.

He described face-to-face and telephone contact as the major means of communication with LEAs. Once every two or three weeks was estimated as the frequency of contact. The I & R Units, the IIC, and the SPC for the three schools visited by the researcher were then addressed. The I & R Units for School A were described by the chairman as follows:

> They have attempted to parallel the design but only in a degree. One unit is still self-contained whereas the other unit operates fairly close to the design.

The I & R Units for School B were described as overly departmentalized. He explained,

> They reflect the design to a degree in one unit. The biggest problem is not self-contained classrooms but their trend toward departmentalization. They don't follow through on the team approach. They just have specialization.

He had insufficient information on the I & R Units for School C. The IIC for School A was considered established; he stated, "They have a pretty good one." The IIC for School B was also considered established and the IIC for School C was described as follows: "One of the better dimensions of their program." The SPC (for Schools A and B) was described as not established. He explained,

> They don't really have an SPC. In fact you could say they really haven't thought about one. Part of it is how the program got started by autonomous principals.

An SPC for the district where School C was located was considered as unnecessary since they had only one MUS-E. He then described a number of concerns within the TEI and he elaborated upon his role vis-à-vis IGE/MUS-E.

He described a close team effort with the other two professors concerned with IGE/MUS-E. He estimated that he spoke with the dean approximately once every two weeks concerning IGE/MUS-E activities and he explained why the dean and the administration were supportive of IGE/MUS-E as follows:

> The dean is supportive and the central administration is behind it. (Why?) Because when we got a grant from the R & D Center for $69,000 they were told something.

He described the staff specialization with respect to IGE/MUS-E inservice activities as a function of the subject area competencies of the three professors. He estimated that 15 percent of his time was spent on IGE/MUS-E. He outlined a number of skills and experiences for effectively fulfilling the role of a TEI representative of IGE/MUS-E as follows:

> You need experience as an elementary teacher, experience in different teaching situations like self-contained, team teaching, administrative experience in an elementary school and training in elementary education and educational administration. It is helpful to have served in a number of roles such as program development at the national, state, and local levels. It is also helpful to have done inservice teaching involving practitioners and to have seen a wide variety of schools and practices.

He assessed himself as having significant influence with respect to establishing the IGE/MUS-E program at the TEI. He stated,

> I played an important role in maintaining the program. When I first came here I gave significance to IGE. The chairmen on this campus can cause or prevent change.

He felt that the TEI had been innovative in the past. He concluded the interview by outlining two major needs: (1) more comprehensive implementation strategy and (2) more extensive evaluation. Concerning the ingredients for effective implementation of IGE/MUS-E the chairman stated,

> First you have to have an informed LEA staff aware and knowledgeable about IGE. Hopefully these are the teachers recognized by the staff as being the best. Second, you need a principal who is well versed in the concept; however, you can start with either group. Third, you need to build on a sense of commitment, either the principal or teachers, to install the concept. Here is where we run into some

> difficulties. The Center must provide a better background to the concept than what they have done in the past. The three day overview is totally inadequate. It leaves too many gaps in the program. If a school decided to implement MUS-E then they should have continuous access to specialized consultants from the R & D Center, SEA, and universities. (Do you see universities playing a role?) Yes, because schools up here are so far away from the R & D Center and SEA that you need an accessible agency. This is especially true for classes or regular inservice. A college can play a direct role because people like to get involved with training that is for credit, it moves them up on the salary schedule.

Concerning evaluation the respondent stated,

> (Do you feel that the R & D Center has evaluated MUS-E?) No, I've made it clear that they are interested in proliferating the concept horizontally rather than helping schools improve. It is a matter of quantity rather than quality. (Has this hurt them in the field?) Definitely! There have been schools that have burned out and there will be more. They should have given these schools help and consequently this is going to hurt the Center. (Do you feel that the theoretical model of MUS-E has been evaluated?) No, that is gospel, you don't question that. If you see it as an alternative then I say you should see alternatives within it. I feel you can have IGE within a self-contained classroom too, for instance.

TEI Representative B . The second TEI representative to be interviewed had been associated with the R & D Center and consequently had had extensive prior experience with IGE/MUS-E. He described his activities and involvement with the R & D Center, SEA, and LEAs. A lack of R & D Center initiated contact was stressed and followed by a description of his activities involving the R & D Center as follows:

> I can tell you right now that I haven't heard from the Center in two years. If it weren't for the fact that I know people there I'd never hear anything. When I am there I go see the man in the mailroom to get reports myself. They think the world revolves around Madison. We can read reports you know! But they have to do more than that. Even other TEI representatives can't get anything.

Activities involving the R & D Center included conferences and consultations; however, he also noted that the R & D Center-TEI relationship was weak. He stated,

> My connection is through individuals. I go to conferences, do some consulting. They never ask us to do anything, however. I am upset with the lack of relationship between the R & D Center and our TEI. Politics control the relationships to date. For example, [another TEI] they have the right people. The dean is a friend of people in the Center, so are the people at the SEA. [State II] has the whole bag, [State III] had it but blew it. [State II] has the proper network, I am sick that [State III] is just messing around.

He described face-to-face and telephone contact as the major means of communicating with the R & D Center. He estimated that once a week was the average frequency of contact.

Activities with the SEA were described as non-existent on a formal basis but moderate on an informal basis. He stated,

> Officially there is no relationship. We tried to set up some university workshops with them but nothing has been done. We do work closely with the SEA coordinator on a unofficial basis. He comes up here every semester, but that is a personal relationship.

Telephone and face-to-face contact twice a month was described as the means and frequency of SEA involvement.

LEA involvement was reported to be comprehensive. He stated,

> We have worked with two leagues of schools, one dropped out. We have tried to get them to support MUS-E, but they wouldn't. In the fall we had 160 people at a conference. We had someone from the Center come free because he is a friend. Then we have drive-in conferences at $5 per person. The schools will pay only that much plus the release time. We had 300 teachers last time. This is our only form of support. The one league we have is only for MUS-E whereas the drive-in conferences are open to all schools regardless of whether they are MUS-E....For our summer workshops we didn't get any applicants within 60 miles of here. The other inservice we do is bootlegged.

Face-to-face contact with LEAs was described and the estimated frequency of contact was considered to be twice a month per school if it had student teachers. He then addressed the question of the establishment of I & R Units, IIC, and SPC in the three schools visited by the researcher.

He was familiar with the three schools and he offered the following assessments: the I & R Units for School A are "beautiful"; for School B

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are "good"; and for School C are "functioning very well." The IIC for School A was considered "strong"; for School B "only fair"; and for School C as having "frank and good relations." The SPC for the district incorporating Schools A and B was referred to as "attempted." The district incorporating School C was described as supportive although an SPC had not been established. He responded to a number of internal issues and concerns vis-à-vis the TEI.

He described a team approach with respect to IGE/MUS-E activities. The team was described as consisting of the two other professors interested in IGE. He estimated that communication with the chairman was frequent and that communication with the dean averaged twice a month. The dean, however, was characterized as militating against self initiative. He noted that the IGE team of three professors specialized in particular subject matter areas, and that his role was flexible. He stated,

> My job isn't really structured. Our outcomes are structured but we are very flexible. Once we decide on something then we know where we are going.

He estimated that 100 percent of his time was spent on activities either directly or indirectly related to IGE/MUS-E. Skills and experience needed to be an effective TEI representative of IGE/MUS-E were delineated as (1) good conceptual background of IGE, and (2) knowledge of IGE. He explained the unanticipated consequences of the influence of the IGE/MUS-E program at the TEI in terms of the chairman's support which had resulted in departmental jealousies. He described the situation as follows:

> We have a lot of influence at the graduate level since we get a lot of the graduate students. We try to get other professors involved but they feel they can't make a commitment to IGE. Because of our tight budget the chairman has given us extra funds, so we've made

> quite a few enemies. The chairman's extra support has created jealousies.

He characterized the TEI as "extremely traditional." The autonomy of professors was noted as the major reason for the TEI's involvement in IGE/MUS-E. He stated, "Freedom of professors allows for promoting IGE and the chairman's support allows you to do as much as you have energy for." He concluded the interview by delineating a number of needs for effectively implementing IGE/MUS-E and for establishing TEI training programs. The characteristics of an effective TEI training program and the need for administrative support were described as follows:

> You must have administrative commitment. I don't think all TEIs can make a commitment like the TEI in State II, but perhaps an IGE track would be best. Students should be offered IGE courses and have field experience in a MUS-E. The staff should be commited to IGE. You need at least five committed people. The untenured tend to be most innovative. You need diversity in the IGE program and lots of curriculum development. We get no time from the university to do inservice. We get no support from the education school. We have a heavy load so we steal time from our supervision load.

He observed that the placement of students in multiunit schools had caused some "static" and consequently, visiting multiunit schools to supervise student teachers and to simultaneously consult with the teaching staff had been difficult. He stated,

> We have an IGE practicum where we used to place 80% of our students in MUS-Es. We got a lot of static so now about 60% are placed in MUS-E. Other staff members here aren't interested in IGE.

The need for the R & D Center to disseminate evaluation findings in order to facilitate the involvement of TEI's was explained as follows:

> You need the R & D Center to disseminate information about their new curriculums--hard data. If they want professors to be interested then they got to disseminate and not hide their data when it isn't significant. No good university is going to buy IGE unless there is some hard data. If you don't know the inside players at the Center then it seems you are out of luck. They don't disseminate anything that might make them look bad.

The general need for evaluation of IGE/MUS-E was considered as crucial. He stated,

> There should be some statewide evaluation of MUS-E. It can't last without some support. I see dozens of schools in [State III] where it isn't going. Evaluation is needed for feedback and we need continuous inservice but not if it can't be supported. The LEAs are the only ones with money but they will not do anything that is too expensive. MUS-E must be evaluated! The problem is the R & D Center is funded on a performance contract so they are only interested in the results of their products and the selling part. They don't worry about how it is working in the schools! This is being noticed nationwide. It's not just me. They sell it so heavily that they forget what they are doing.

The last need outlined by the respondent dealt with the SEA. The ideal role of SEA was prescribed as administrative as opposed to a training role. He stated,

> They should be tied-in as coordinators not implementors. TEIs should do the implementing. You can't have one SEA person running all around the state training teachers. A coordinator wouldn't even have to be fulltime. (Why is the SEA so slow?) Because their top management is weak.

The third TEI representative to be interviewed provided additional insights into the role and concerns of the TEI.

TEI Representative C. The third TEI representative had been a professor in the department of elementary education for eight years. He described his activities and involvement with the R & D Center, SEA, and LEAs. Disseminating, implementing, evaluating IGE materials, and conducting workshops were described as the major activities involving the R & D Center. The frequency of contact was estimated to have been weekly during the initial stages of IGE/MUS-E development but currently it was estimated to be on a monthly basis. The activities and support of the SEA were described as follows:

> They were a strong supporter at first. They had clout since we aren't regulators and they are. They could be more demanding with the schools. Sometimes you have a traditional structure where there is teaming and a unit leader and they call themselves MUS-E. They used to run workshops and used to be resource people. They also had

> a lot of I/D/E/A material and films and they could exert influence for Title III funds. They were a very supportive agency but when their budget was cut they lost their key person.

Face-to-face, telephone, and correspondence with the SEA were estimated to be on a weekly basis during the initial development of the program and currently they were on a monthly basis. Activities and problems associated with the TEI's field outreach with LEAs were then described as follows:

> They [LEAs] call us for support and advice in terms of curriculum and revising programs. They send us teachers for course work. We have workshops for dissemination and we visit them when our student teachers are there. We take the view that helping them helps our students. We offer IGE courses, curriculum development, leadership practicums and we will work directly with individual teachers. The problem is that there is nothing in the budget which supports us helping them. We have to do most of it during class time or when there is consulting money but there is little of that. We have good credit hour contact however. Next year one district will be giving eight half days of inservice. We have offered to help them. They have some of our students so we can go there and help with inservice. If our students weren't there we couldn't do it unless we got credit load for inservice.

Face-to-face and telephone contact with LEAs were estimated to be on a weekly basis. He noted that onsite visits to MUS-Es were conducted once every three weeks. The TEI representative outlined a number of internal characteristics and concerns of the TEI program including his role.

He explained that there was minimal cooperation and interest in IGE/MUS-E among the TEI staff except for two professors (the two previous respondents). He stated, "There are some people we have no contact with, they aren't interested or they aren't around when we are." He estimated that communication with the chairman of the department was "daily" and communication with the dean was "infrequently." He commented on the lack of the dean's support as follows:

> He is not an actual supporter of IGE. He doesn't block it, he isn't in opposition, he just doesn't give strong support, interest,

or help with dealing with the university bureaucracy.

He noted that the other two professors interested in IGE "complement each other" and that his role as a TEI-IGE/MUS-E representative was "flexible" and "unstructured." Approximately 75 percent of his time was estimated as being spent on IGE/MUS-E activities. The skills and experiences needed to be an effective facilitator of and trainer for IGE/MUS-E were described as not always consonant with the experiences of professors. He stated,

> You have to have experience in being self-directed, see alternatives, and operate on a practical problem solving level. We don't provide these types of experiences for college professors. Having something on paper is different from doing it.

He mentioned the impact of the IGE/MUS-E program in relation to his influence within the TEI as follows:

> Since we have proved that our program will work by bringing in a lot of students and getting national recognition we have a great deal of influence. Other people begin to feel that there must be something to it. It helps make believers out of them and reluctant ones will at least listen to you.

The past innovative performance of the TEI was considered weak. Four areas of need were outlined as (1) need for IGE courses and TEI outreach, (2) need for greater R & D Center involvement, (3) need for evaluation and followup, and (4) need for a cooperative effort among resource and mediating systems. The first need focused on the role of the TEI which he described as follows:

> You have to have courses and opportunities for the student to live through the MUS-E experience. You can't just lecture. You have to understand and work with IGE if you want it all to hang together. We should give recognition for the staff that works with MUS-Es, then we could be of service to schools in our area. There are a lot of opportunities there.

The second need focused on the role of the R & D Center. He stated,

> Opportunities for involvement are great with respect to the R & D Center and SEA. When they had more money they used to come up here all the time. You need that face-to-face contact. Especially when you are trying to get people to change.

The third need for evaluation and followup focused on the role of the R & D Center and the TEI. He stated,

> (How do you feel about the Center's evaluation?) It hasn't been evaluated adequately. We need some sort of program to retrain those who initially began MUS-E. We've changed since the original design. Those early schools have been left in the dust. (Do you think the Center should exert control on MUS-Es to follow the design?) Evaluation would do this for them. We could rate them on their operations. We need a way of evaluating them.

The fourth need for a cooperative effort among the resource and mediating systems also included the need for cooperation among MUS-Es and TEIs. He described the need as follows:

> (Do principals see the university as meddling?) No, if they do, I wouldn't go. It has to be a cooperative effort. If the SEA hadn't initially supported it, the Center develop it, and the universities disseminate it then it would have all crumbled. I see helping MUS-Es as taking an interest not throwing stones at them, of course you have to be willing to help them.

In summary, the TEI representative delineated five needs related to the R & D Center: (1) evaluation of IGE/MUS-E, (2) timely dissemination of evaluation findings, (3) revision of the R & D Center's workshop content, (4) refocus of implementation priorities from quantity to quality indicators, and (5) increasing R & D Center-TEI contact. Two related needs, stressed by the TEI respondents, focused on administrative support for and concomitant increases in field outreach activities. In addition to the needs delineated by the TEI respondents, the impact of graduate courses in IGE/MUS-E was noted as facilitating inservice efforts. The salary increment accruing to teachers enrolled in graduate courses was considered to be the motivating factor. Interviews with principals, unit leaders and unit teachers from three MUS-Es in the vicinity of the TEI provided a contrasting perspective of the diffusion of IGE/MUS-E, and the roles of the R & D Center, SEA, and TEI.

User System

The three multiunit schools visited by the researcher were in the vicinity of the TEI. Two MUS-Es were in the same district and the third MUS-E was located in an adjacent district. Three principals, two unit leaders, and two unit teachers were interviewed.

School A

The first MUS-E visited by the researcher was located on the periphery of a city. The approximately thirty-year-old building had undergone extensive remodeling. An addition to the building had been designed as an open space module for two I & R Units. Interviews were conducted with the principal and a unit leader.

The Principal. The principal had earned a master's degree, and had been an elementary school principal for six years. He described his activities and involvement with the R & D Center, SEA and TEI. Workshops at the R & D Center and IGE materials were considered the sole activities conducted with the R & D Center. Face-to-face contact and printed materials were considered as constituting monthly contact with the R & D Center. The SEA was noted as having conducted "some inservice". Contact was estimated as twice a year and described as face-to-face. Activities with the TEI included credit courses for IGE/MUS-E staff, supervision of student teachers, and participation by the principal in graduate classes. He stated,

> I've been a resource for them in their graduate classes. Sometimes they have a class here. Our teachers have taken courses there and their student teachers are here. Our contact with them isn't any different than it would be for any other school. They'd do the same thing if they were asked by any principal. (Do you ever ask for their help?) No, well I did ask them once about some curriculum but that didn't deal with

> MUS-E. The university takes an interest to the extent you want to involve them. One of them comes over here once a week to supervise student teachers, but he doesn't add anything to our school. This one individual just doesn't blend in here. It would be better if he didn't come.

Face-to-face contact with the TEI was estimated to be weekly. The I & R Units, the IIC, and the SPC were described by the principal.

The I & R Units, the IIC, and the SPC were all considered established and operating effectively. The operations of the SPC were elaborated upon as follows:

> Yes, we have one. We meet about every month. We modified it this year because the group was getting large. We don't have all the unit leaders represented. (Do they make policy?) Yes, but not contrary to the board. Last year we studied report cards and we let each MUS-E develop their own.

He addressed a number of questions dealing with internal characteristics and concerns of the school and the role of an IGE/MUS-E principal. The working relationship with unit leaders and the central office was described as follows:

> I work closely with unit leaders. (How about with the central office?) We work close with them too. (Are they much help?) You get the help to the extent you ask for it. They are no more of an expert than we are. They are supportive in terms of material. Who are the experts anyway? The teachers are! Our teachers here are pretty much self-taught.

Communication with the superintendent was estimated to be once a week, and communication with the elementary coordinator was considered to be frequent. The role of the principal was discussed in terms of (1) increased delegation of decision making to unit leaders and (2) increased time devoted to group dynamics. He described these aspects of his role as follows:

> I delegate more now but I am not uninvolved. (Are teachers making more decisions now?) Yes, but they are unit decisions where they all contribute. There is no individual pressure put on them. The job of the principal is considerably more difficult. In the

> traditional school you related on a one-to-one basis but in a MUS-E you relate to the teacher in terms of the entire unit. Plus you are opening up new dimensions of group dynamics that have to be dealt with. In the self-contained the teachers can shut their door and ignore the problem. You can't do this in MUS-E especially open like ours. You got to solve problems in order to work. This is a fundamental difference and it makes a considerable demand on the principal. The extra effort is worth it because students benefit. The atmosphere is better.

The need for structure within a multiunit school was addressed in terms of the role of the principal. He stated,

> My role is structured. You have got to have structure but it is harder to maintain in a MUS-E. You just can't say this is it. You got to get at group feelings and this becomes cumbersome. A lot of times the principal must make the final decision but teachers have input.

The amount of time to perform the role of an IGE/MUS-E principal was considered to be comparable to the time requirements for non-IGE/MUS-E principals. He stated,

> I basically do the same things as in the traditional setting. The job of the principal isn't changed. You are still the instructional leader with discipline and public relations.

Elaborating upon the skills and experiences needed to be an effective principal of a multiunit school, he stated,

> You need the same skills to be a good principal no matter what the school is, the qualities that make a good principal are the same for both. You could be a good non-MUS-E principal but fail as a MUS-E principal. I guess you need to be very sensitive, you got to minimize friction that occurs when people are working together - keep things on an even keel. You could isolate these before in the traditional and not bother to solve it. You have to be a facilitator of human interaction. One teacher affects all the teachers in our unit because they are open.

A self-assessment of influence produced the comment, "I have quite a bit of influence." He described a transition within the district from traditional to innovative as follows:

> Historically it has been traditional but the last few years it has changed toward innovation, toward taking the initiative. Changes in personnel at the top affect things like this. They have a big impact. If they are sensitive then they respond. There is pressure on a national level and from parents.

He concluded the interview by outlining a variety of needs which focused on LEA, SEA, R & D Center, and TEI. He described the needs of LEAs in implementing IGE/MUS-E as follows:

> You need adequate staff. I don't think the R & D Center can do much about what is needed. You need instructional resources, you need more funding. MUS-E is more expensive. You need more staff to have small group instruction. This combining of large groups to have small groups is limited. You got to have staff and aides.

The role of the SEA was described as follows:

> (How about the SEA?) Funding is what they should do, the district can develop their own programs if they have the time and money. We don't need someone from the State Capitol to tell us how to do it.

The principal emphasized that the role of the R & D Center should focus on research and on minimizing the cost of IGE/MUS-E. He stated,

> Training programs the R & D Center could do but who is going to pay for it? (What should they be doing?) Research. If the program is too expensive that they develop then forget it, it will never be bought. (How about their evaluation?) Yes, they should do that.

The TEI was addressed in terms of its field outreach and workshops, and its lack of experience with IGE/MUS-E. He described the need associated with the TEI as follows:

> The TEI does more. (Do you feel they should get into the schools?) No, they would be out of their element if they got more involved with the schools. They shouldn't come into the schools to set up programs. Success comes from teachers and the university has responsibility to their students not schools! The university creates interest in new ideas through its courses. Their role is to inspire and keep it practical. Workshops are good, they can be used, working on a degree can't... . How many of the university staff have taught MUS-E? Very few! You can't teach teachers to teach kids until you yourself have taught them. They operate otherwise on a theoretical basis. The best professors are those who have been elementary teachers. The TEI is practical most of the time but there are a lot who haven't really had the training.

The interview with the principal of School A revealed the following: (1) IGE/MUS-E was considered established, (2) the role of the principal was described as comparable to a non-MUS-E role except for the added factor of group dynamics, (3) the role of the R & D Center was prescribed as research oriented, (4) the role of the SEA was prescribed as funding oriented, and (5) the role of the TEI was prescribed as training oriented with a heavy emphasis on practical experience and skills. The unit leader interview provided a different perspective on the role of the R & D Center and TEI.

The Unit Leader. The unit leader had earned a master's degree, and had been a unit leader for one year. He described his activities and involvement with the R & D Center, SEA, and TEI. Activities with the R & D Center included workshops conducted at the R & D Center. He stated,

> I haven't been there this year, we really don't have any direct contact. Last year three teachers went there for a seminar. They have never been here. We do get material from them.

He estimated that twice a year face-to-face contact was made with the R & D Center. There were no activities with the SEA, but there were a number of activities involving the TEI. He described the TEI activities as follows:

> I had classes with a lot of the instructors there. They don't come here to talk with us but we may talk with them over a cup of coffee when they visit their student teachers.

The face-to-face contact with professors was estimated to be on a weekly basis. He described the characteristics of the I & R Units, and the IIC, but he was unable to describe the SPC.

He responded to the question concerning the establishment of I & R Units as follows:

> What is an I & R Unit? I've never heard of that before. (What do you call them?) Units? (Do they span grades?) Yes, grades three and four, chronologically we have four, five and six year olds. We aren't totally individualized. Math, art, physical education are traditionally run. Science and social studies move along homeroom

> lines, but it is individualized in their homerooms. In the afternoon it is cross graded, ability grouping in reading is used.

The IIC was described as follows:

> There are only two unit leaders because our primary grades are only 25 percent unitized. The meetings take from five to forty minutes. We discuss things that should be brought up at the building meeting and problems that can be ironed out in the units, scheduling, and we do a little on curriculum improvement.

However, the SPC was not a familiar organizational arrangement. He stated, "I don't have contact or knowledge about it." Internal concerns and characteristics of the I & R Units and the role of the unit leader were then addressed.

He compared the close working relationship within the I & R unit to his previous experience in a partially closed school. He stated,

> I work closely with the unit teachers. An open situation demands close planning. I was in a partially closed school last year and it didn't require as much coordination. What you do affects everyone. This setting brings out the best in you. In the past you could close the door and forget it. We have 165 kids in this open space and six homerooms.

Communications with the principal was estimated to be "at least three to four times a day." The degree of specialization among unit staff was described as follows:

> When the unit was formed last spring, one of the criteria for recruiting was to find teachers with particular strengths. Mine was in physical education for the unit, each homeroom at a time. (How about math and reading?) No, we don't have differentiated staffing there. We put one teacher in the resource center because she is good with small groups. I see very little of my homeroom per se. I see them for announcements and physical education. I see some of them during the day depending on the group.

The role of the unit leader was characterized as one of responsibility without authority. He stated,

> I see myself as a person with responsibility but no authority. I am an instructional leader responsible for the successful operation of the unit. (Do you get extra release time or a stipend?) No released time but I get a stipend of $700 per year.

Due to the specialization of physical education classes, the portion of time spent on IGE/MUS-E activities was estimated as 66 percent. Skills and experience needed to be an effective unit leader were delineated as follows:

> Getting along with people, being sensitive to very trivial things--these can become big if let go. Good background in IGE, understand the design, inservice and university courses, prior experience in both traditional and unit operations are needed. You shouldn't be a unit leader without experience. Self-contained classroom experience is helpful to see the difference. You need a backlog of experience. You have to be able to schedule too.

The difficulty of the prescribed scheduling skill was illustrated to the researcher during the interview. The unit leader explained the complex arrangements associated with coordinating the movement of 165 pupils among the six I & R Unit staff members. He explained that one change in the schedule affected the entire weekly plan.[20]

He assessed himself as having considerable influence within the school. He stated,

> As much as realistically and reasonable is possible. Whatever I request as a unit leader or as an individual has never been refused. I have quite a bit of influence.

He characterized the district as innovative even though the town was conservative. The interview was concluded with a delineation of the needs of an IGE/MUS-E with respect to the role of the R & D Center and the TEI, and the need for central office support. He described the need for additional materials from the R & D Center as follows:

> I would like to see more things come from the R & D Center. We need more materials specifically geared toward the behavioral objectives in the folders.

Needs related to the TEI were addressed as follows:

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[20] See Appendix D.

> I'd like to see more contact with the university. They should be here asking the questions you are asking now but as it is we have to register for that and it isn't the same.

The need for central office cooperation was attested to when he stated, "We have good cooperation from the central office, without it we couldn't do much." He was unsure of the need for evaluation; however, he did describe two indicators which made IGE/MUS-E "psychologically rewarding" (1) fewer discipline problems, and (2) lower absenteeism. The most critical ingredient for insuring the success of IGE/MUS-E was described as the "cooperation of the faculty."

In summary, the unit leader in School A considered scheduling to be a major task, and he indicated that the R & D Center and TEI should give greater support in the areas of materials and on-site visits. The similarities and contrasts between the principal and unit leader in School A may also be seen in School B.

School B

The second MUS-E visited by the researcher was located in the same district as School A. The school was approximately ten years old and it was located within a mile of the TEI. The only open space in the school was a recently renovated IMC; the physical configuration of the classrooms had remained unchanged. A section of the hall was decorated with trash from the school yard posted on signs which admonished pupils to be neat. During lunch the principal roamed the halls with a yardstick behind his back in order to maintain order. The principal, a unit leader, and a unit teacher were interviewed by the researcher.

The Principal. The forty-seven year-old principal had earned a master's degree and had been a principal for seven years. He described his activities and involvement with the R & D Center, SEA, and TEI. Inservice activities and acquiring new knowledge about IGE were described as the major activities involving the R & D Center. He stated,

> Right from the beginning we've been affiliated with the R & D Center. We've been to inservice there and if there are meetings in Madison that are important we go even if we don't want to. We go to keep abreast. If you don't go you lose out. We have had R & D Center people here. We were a monitor school of I/D/E/A. We've had them here to answer questions. We've had seven of our twelve teachers go down to Madison for summer workshops.

He estimated that twice a month there was either face-to-face, telephone, or correspondence contact with the R & D Center. Involvement with the SEA was described as primarily focusing on the central office and attending building meetings. He stated,

> We don't have too much contact with them. [The SEA coordinator] would come to some meetings. We don't see him anymore. They work with the central office. They'd come if I called.

The face-to-face and telephone contact with the SEA was estimated to be once a month. Activities with the TEI were described as follows:

> We do a lot with them. [The department chairman] works closely with us. It is a reciprocal thing. I help him with student teachers. (Have they helped in the implementation of MUS-E?) Well, we knew more than they did so they haven't given us as much help as newer schools. Anytime we want them they'll come. [The chairman] was at our SPC meeting just last week. We get fabulous cooperation.

The TEI's involvement with student teachers was explained as the major reason for face-to-face contact with professors at least three times a week. The I & R Units, the IIC, and the SPC were described operationally and adaptations were explained.

The I & R Units were outlined as follows:

> Yes, we have units to a degree. We aren't completely IGE or MUS-E. They are plans in themselves and you have to use parts of them when you can. I don't always agree with the units and they don't agree with me. We have two units with grade integration. Not all of our classes are this way, our skill classes are. Not everybody is cross graded in all other things.

The IIC was described as follows:

> We used to meet every week but we don't meet as often now. Sometimes other things are more pressing. Things go to the unit leaders, I don't go to unit meetings unless I am asked. It is my philosophy that they'll discuss more and work it out in their own way. It is the old administrator image. It is very open here so it isn't as important to have the IIC when you can talk in the hall.

The SPC was described and changes in the membership were explained. He stated,

> The SPC is operating but not the way the model was originally set. There were too many people. We took a poll of the unit leaders. We concluded that unless they had something to bring there we would do it for them. Now we are able to start earlier since there aren't any teachers. We set policy, we plan, and the central office uses us principals as resource people. Our four MUS-Es aren't the same, we're all different.

Internal concerns and procedures within the school were addressed by the principal and he also elaborated on his role. Coordination between unit leaders and the principal was described as follows:

> My unit leaders are free to set up any programs they want to after they see me. I never turn them down. I don't want to turn them off and I don't want to tell them something won't work. They discuss things with me and I get notes on all unit meetings.

Communication with the superintendent took the form of weekly reports and group meetings. He characterized the assistant superintendent, and the elementary coordinator as "easy to talk to." He stated,

> I see the assistant superintendent about once every two weeks but I do not always talk to him about MUS-E. The elementary coordinator is very generous with giving us help. The IMC director will do all he can to get materials for us. We have to involve the other schools even though they aren't MUS-E. They may feel some jealousy in all the materials that we get.

The extent of teacher specialization, the increase in delegation of activities to unit leaders, and the reason that none of the teachers transferred from the school when it became IGE/MUS-E were described as follows:

> I have more work to do now. A lot of it I delegate to unit leaders. (Do they have to make more decisions now?) Well, I don't know about that. On scheduling they do. Yes, I guess they do make

> more decisions now. Years ago they followed a standardized book which gave them the times for doing everything. (Is this a problem?) Maybe it was the first year. Other schools are jealous about our talent, they accuse us of hand picking the staff. Well, you have got to have a hand picked staff otherwise you will blow it. (I understand that although teachers can transfer out of a school that will become MUS-E most of the teachers here did not. How did you resolve this?) Well, I could have had them transferred out if I wanted to but they are all good teachers. Each one has his particular strength. I choose all the teachers here. (Do the units have a say in who is hired?) Not formally, the rumors get around, however, and they say something to me.

He felt that his role as principal was structured but he also noted that formal meetings with teachers were held to a minimum. He stated,

> My role goes both ways. There are certain policies that you can't deviate from, you have to have these types of policies. I don't have many teacher meetings here because I see them every day in the hall and we all eat together.

He estimated that 20 percent of his time was spent on IGE/MUS-E activities. The skills and experiences needed to be an effective IGE/MUS-E principal were described as follows:

> First, you need someone with classroom experience, second you have to have a more open mind to be able to come up with new ideas. I know there are principals in this school system who wouldn't be in an MUS-E school for anything. You have to have patience! There is a lot of freedom and it is not as quiet here. There are some principals who just couldn't stand that.

With respect to his influence within the district, the principal stated,

> I was influenced by the director of curriculum who is now the superintendent. He backed me up on the whole design. (You have considerable influence then?) Well, along with the curriculum director at that time I did.

Although he considered the district to be traditional, he noted that there were innovative teachers and that IGE/MUS-E as an innovation should not be forced on the entire school district. He stated his views as follows:

> The district is not necessarily innovative. However, we have a lot of innovative teachers in non-multiunit schools, too. The multiunit school concept is not utopia. It should not be implemented system-wide, you can't force it nor should you want to try to force it.

He noted that the union was instrumental in effecting a 9 percent pay raise for unit leaders. He stated, "We have no union trouble here." He outlined a variety of needs related to insuring a successful IGE/MUS-E. Factors within the school and district facilitating the implementation of IGE/MUS-E were described as follows:

> The staff is the most important thing. You can have one sour apple and it blows it all apart. The second thing you need is good unit leaders. The third thing you need is cooperation and help from the central office in getting things going--things such as materials, and equipment. Fourth, you have to have the parents' cooperation. We held meetings and sent home bulletins and newsletters. We have a program once a year on the multiunit school where parents take mini courses.

He stated that even though IGE/MUS-E "hadn't been evaluated," the parents were satisfied with the school's program. He felt that there was little need for more involvement by the SEA. He stated,

> No there is nothing in particular that I would have them do. If there is all I have to do is give them a call.

The TEI was considered as contributing a vital resource to multiunit schools in terms of student teachers. He described the student teacher situation as follows:

> You can't be without student teachers. Without them you would have to become a self-contained classroom. (As enrollment drops they may have less student teachers?) Not here, [the department chairman] decided that the multiunit schools will be the first choice of the student teachers and other schools around here will get less. The other schools complain but experience in student teaching in a multiunit school is much better than student teaching in a traditional school. The student teachers get exposed to more than one grade level.

In summary, the principal indicated that (1) IGE/MUS-E was a plan to be adapted, (2) the quality of the teaching staff was critical, (3) the lack of evaluation had not been dysfunctional, and (4) student teachers contributed much needed manpower. A different perspective of School B's IGE program and the multiunit organizational configuration was provided by a unit leader.

The Unit Leader. The unit leader had earned a master's degree, and had been a unit leader for three years. He described the activities with the R & D Center, SEA, and TEI. A decrease in R & D Center contact was noted in comparison to the early stages of IGE/MUS-E development. He stated,

> When I first became a unit leader I went to the R & D Center for three days and had a very excellent training session. The R & D Center people also came here for two days for inservice training. That session was not very good. They spent too much time assessing us. I have been down to Madison twice for one-day sessions and I have been to one session at a resort area. The university held a one week session and they had R & D Center people and the SEA coordinator there. We have had several people from the R & D Center and SEA come here to our school. I feel I know them quite well. They've kept me tuned in, except now I see a total breakdown. This year all the things are being dropped. There has only been one person up here this year from the R & D Center.

Face-to-face and telephone contact once every three months was estimated for the initial development stages of IGE/MUS-E. Current contact was estimated to be once a year. One reason for the extensive contact during the initial development stages was attributed to the Type I and Type II status of the school. He explained that a Type I school has a "lot more contact than most MUS-E's." Activities with the SEA were entirely focused upon the involvement of the SEA coordinator. He stated,

> Actually our involvement with the SEA is just what the coordinator has done. He comes in once in a while and tries to help us. However we don't see him much anymore.

During the initial development stages of IGE/MUS-E he estimated that the SEA coordinator visited the school three times per year. However, he noted that he had not been to the school this year. Activities with the TEI focused on student teachers and summer workshops. He described the TEI relationship as follows:

> We had interns from the TEI. We have a close relationship with the student teachers and their professors. We have a field experience here for the freshmen and juniors. I have taken a course on IGE. The university also holds drive-ins on Saturday where there are IGE materials. They have a week long program in the summer on MUS-E and they have an outstanding faculty. They will come help us if we call. I am impressed with the help they give to us. I feel close to them, I feel they treat me as one of their staff. (Have they come to help you at all?) No, but they would be very willing to if we asked them. We are a little smug I guess. (Do they do inservice in your school?) Not on the multiunit school concept, they do on some other things, however, in other schools. (Would you like to see them here more often?) No, I'm satisfied with their help now.

Visits by the TEI staff were estimated to be three times a week in order to supervise student teachers. Prior to having student teachers and during the initial implementation of IGE/MUS-E, he estimated that the TEI staff visited the school once a month. The I & R Units, the IIC, and the SPC were addressed and their operations explained.

The I & R Unit was described as follows:

> We have 132 kids in our primary unit and six teachers. We also have one aide. There are three grades in the primary unit with ages between 6-9. This is true for the other units also.

In reference to the IIC he stated,

> The principal and other unit leaders don't meet as often and we don't work as effectively as we could. We discuss business matters in the IIC meeting, the budget, and potential things that may involve both units. The principal tells us things to bring up in our unit meetings. We serve as an intermediary between the principal and the teachers. We used to meet once a week, our meetings are less now. The meetings usually last between 45 and 60 minutes. This type of job requires many more extra hours and there is no release time for unit leaders.

The membership and issues discussed at the SPC were described as follows:

> We used to go to the SPC. The meetings were once a month after school. Now the unit leaders have been dropped so the principal represents us. When I used to go we reported on our activities, and we had a give and take discussion. (Did you set policies?) No, but we would set days on which to work on curriculum. We didn't set policies. They used to take minutes at the meeting but not now.

Internal procedures and concerns, and the role of the unit leader were addressed by the respondent. He emphasized the lack of systemwide cooperation but he did note that unit members worked together closely. Central office and board of education assistance and interest were considered inadequate. Communication with the principal was estimated to be daily. The degree of specialization within the unit was discussed and explained as follows:

> Yes, we have specialization. We do more specialization as a grade, however. We split up grade three quite a bit. I take all the physical education, music and science and the other teacher does all the art, health, and social studies. Reading and math are cross grouped as a unit. We divide the math and reading by skill level. The children move from one group to another. The size of the group varies every three weeks.

He considered that he had a "definite role" as a unit leader and he estimated that 70 percent of his time was spent on IGE/MUS-E activities. He outlined group dynamics, sensitivity and flexibility, and knowledge of IGE as the skills and characteristics necessary in order to be an effective unit leader. He stated,

> You have to be able to work with people and not get uptight. You have got to be able to come back when people give you a hard time. You can't be a supersensitive type but you have to be sensitive to other teachers and knowledgeable about IGE.

He assessed himself as being influential within the unit. He described his influence as follows:

> Yes, I feel I have influence. If I didn't bring ideas into our unit meetings nothing much would happen. Without new ideas everyone tends to be satisfied and to stay where they are.

The district was characterized as cautious in terms of implementing innovations. He stated,

> We've tried a lot of things but we aren't the types who jump on bandwagons. We sort of dip our toes in. This district has a lot of room for improvement.

He concluded the interview by outlining three major needs: (1) the lack of board of education support, (2) the lack of release time, and (3) the lack of suitable staff. The R & D Center was perceived as a potential source of influence vis-à-vis the uncooperative school board. He stated,

> The R & D Center has not been very helpful. My main gripe, however, is with the board of education. I feel the R & D Center should perhaps help us with the board of education. [The SEA coordinator] did do a little bit with the board but it was not successful.

The need for releasedtime was expressed during a discussion of the 9 percent stipend paid to unit leaders. He stated, "I get 9 percent of my base salary but I'd rather have an hour extra release time." Traditional staff members, and the difficulty of retraining the staff were described as follows:

> Our biggest problem is with traditional staff. We had a choice of staying here or transferring. No one left. Some are still here doing the same old thing they always did. We have some here who say these are my children and this is my room. I don't want anyone teaching in my room. (What can be done about this?) Well, he's retiring. (How about the university?) They cannot really be of much help because it has to come from within the person. They can't be convinced to change so I don't see any help the university could give.

In summary, the unit leader expressed minimal need for external assistance from the TEI, the SEA, or the R & D Center. The principal was considered effective and he felt a high degree of influence. Traditional teachers and an uncooperative school board were perceived as significant problems, and the need for release time was considered more important than additional remuneration. A comparable perspective, which supported the majority of concerns of the unit leader, was expressed by a unit teacher.

The Unit Teacher. The unit teacher had earned a bachelor's degree, and had been a unit teacher for three years. He outlined activities and involvement with the R & D Center, the SEA, and the TEI. He commented on a one day visit to the R & D Center as follows:

> Just this year I have been to a one day presentation at the R & D Center. Two of the presentations were disappointing because I

> could tell they were trying to sell their product. One presentation I went to had unit leaders speaking. These presentations were good. You came away with something. When I first came here I had never taught in a multiunit school before so I've learned a great deal from inservice especially from people that have been in a multiunit school. (Has anyone from the R & D Center talked to you up here?) Not this year, but when we were a Type I school in word attack, someone from the SEA came here.

He estimated that face-to-face contact with R & D Center staff members was once in three years. Activities with the SEA were described as follows:

> Someone from the SEA used to come here quite often. We have been wondering what he is now doing since we don't see him anymore. They would come here and they would meet with the unit leaders and he would also meet with the unit teachers.

The face-to-face contact with the SEA coordinator was estimated to be once a year. Activities with the TEI focused on student teachers. He stated,

> Working with student teachers is the major thing that we do with the university. The student teachers really like it here. They work very hard. Our university has many meetings and we get together to talk about student teachers. (Do they have workshops?) Yes, especially during summertime. One summer there was a course that I took on IGE. (Do university people come here?) Yes, there is a group that comes here with their students, professors feel that students should be in the classroom. There is a lot of involvement. (Do they help you on any particular problems?) The professors interact with us. They would work with us if we asked them. I talked to one professor quite a bit. I've never asked him for help on MUS-E. I don't think we need any help in running the unit. Our contact is mostly with the student teachers.

Face-to-face contact with TEI staff was estimated to be on a monthly basis. The I & R Units, the IIC, the SPC were discussed and their operations were described. He assessed the I & R Units as follows:

> No, we don't have I & R Units. We are doing a great job in the reading program, however. We have gotten some help with the reading program from the state department. However, we don't seem to be able to do the same thing in the other subject areas. There just doesn't seem to be time. Our staff has good rapport--we have been doing much more teaming in the past. However, we still talk about the first, second, and third grades. I'd like to be able to tell you that we have I & R Units, but then I wouldn't be honest.

The IIC, although not totally familiar to the unit teacher, was described as follows:

> Yes, I think they have an IIC. They have been operating quite well from what I know. My unit leader keeps all of us in the unit well informed.

The SPC was addressed and the support of the central office was mentioned. He stated,

> I don't know if they have an SPC. I guess they do, but I don't feel that there are any two multiunit schools that operate in the same way. We know what should be done but we are not given the staff or time to do it. (Is the central office supportive?) Yes, but they don't know what we have to do. We had to work hard just to get our once-a-week unit planning time.

Internal characteristics, procedures, and concerns were the subject of the next series of questions.

A close working relationship was described with the unit leader. He estimated that he spoke with the unit leader and the principal on a daily basis. In reference to the degree of specialization within the unit, he responded as follows:

> Yes, we have specialization; two second grade teachers and I teach all the physical education, one teacher teaches music. I'd like to see more specialization for some of the teachers. We could save ourselves a lot of time and we can do a better job. We do some work in math and spelling as a group. Reading, however, is the only subject where it is cross graded.

The degree of unit teacher role structure was explained as follows:

> In some areas my role is structured and in other areas it isn't. I can structure it within my own homeroom. My activities are structured to the point that at certain times certain things must happen. In a multiunit school some things are more flexible, however.

He estimated that 33 percent of his time was spent on IGE and he noted that time requirements were a constraint. He explained,

> We try to do IGE in math and spelling in addition to reading but it takes a lot more time. I would estimate that 33 percent of my time is spent on IGE.

Skills and experiences needed to be an effective unit teacher and the conflict between homeroom and unit identification were described as follows:

> Personality is a big thing. You have to be able to share things with other people and you have to be flexible. It is hard for all of us to get away from the feeling that the kids in the class are my children and your children and this is my room and that's your room. If we can get away from that kind of thinking you'd be better off. You have to be willing to specialize in an area and trust the other people with your children. You are still accountable for the kids in your homeroom. You must be accountable for that. This could be a problem in some multiunit schools. Someone should know the individual child and know everything about what they are doing when they're in the school. This is what we are concerned about and we should be.

The unit teacher assessed his influence and the innovative nature of the district. He stated, "I have much influence," and the district has a "good reputation." He described the major need in the school as unit leader released time. In addition he noted that external assistance from the R & D Center and TEI were not needed. He stated,

> I really think that the materials from the R & D Center are good and their assessments are good. However, the unit leaders need released time, the teachers in the unit try to do things to help but he still needs released time. (How about closer contact with the TEI or the R & D Center?) Well, I think they have done what is expected of them.

In summary, the unit teacher indicated that cross-aging was limited and the traditional homeroom identification among teachers was not uncommon. Assistance from the R & D Center, SEA, and TEI was not perceived as needed with respect to extending and refining IGE/MUS-E. Released time for unit leaders was considered to be a major need within the unit and within the district. A contrasting perspective of the TEI and R & D Center was provided by the principal and unit teacher in School C.

School C

The third multiunit school visited by the researcher in State III was located in a district adjacent to the TEI. The school had been recently constructed and it reflected a progressive and modern image--large open spaces, wall-to-wall carpeting, numerous glass-enclosed meeting rooms. Within one large open area there were multicolored signs suspended from the ceiling proclaiming the results of a reading contest. Montages along one hallway stressed the need for ecology. The principal of School C and a unit teacher were interviewed.

The Principal. The principal had earned a master's degree and had been a principal for eleven years. He described his involvement and activities with the R & D Center, SEA, and TEI.

Involvement with the R & D Center was restricted to two conferences on IGE/MUS-E which had been sponsored by the SEA. The presence of R & D Center personnel at the conference constituted the principal's involvement with the R & D Center. He described the conference and explained why the school adopted the multiunit configuration as follows:

> We first got involved with MUS-E two years ago when we went to a SEA conference. The elementary principals there picked up information and looked at the Wisconsin Design. There were some people from the R & D Center there. We listened to some of the principals that had already had experience with MUS-E. I think the biggest reason we became a multiunit school was that the building that we are in now was built without walls. It was decided to build the school that way before we ever heard of MUS-E.

Face-to-face contact with the R & D Center was estimated to be on an annual basis. Activities with the SEA were considered to be the two conferences previously described. He added, however, the following comment: "We haven't done much with them, they gave us some input." Face-to-face contact with the SEA was estimated to be once every four months. Activities with the TEI included conferences, student teachers, consultations, and graduate course work. He described the school's involvement with the TEI as follows:

> They set up drive-in conferences, student teachers, and they come out and spend time visiting the units and teachers here. They help with IGE through their course work. We had a workshop with our teachers and some university staff. It has become a college course now. We selected our staff on the criterion that all the teachers must have attended the workshop with the university. While I was at the workshop, I observed the teachers and I could pick out the ones that would seem to make good unit leaders. They were ones who were the most interested in MUS-E. (Does the university staff come here on general visits?) Yes, [one professor] sits in on the IIC once in a while. We have lots of phone calls to and from [there]. He is very helpful and eager to help. They would rearrange their schedule to come here. (How often do you ask them for help?) Well, not much now but at first I asked them for help once a month. Since our teachers were taking courses they could bring problems to the university and solve them in class.

Bi-monthly face-to-face contact with the TEI was estimated by the principal. The I & R Units, the IIC, and the SPC were the topic of a series of questions dealing with their establishment.

The I & R Units were described as follows:

> Yes, we have I & R Units. We would like to spread our age grouping, however. We are still somewhat traditional in our own thinking. We will have to increase the age grouping once our enrollment increases then our units will be pretty good.

The IIC was described in terms of the principal's role and the sharing of responsibility. He stated,

> We have an excellent IIC. This is the first time for me to sit with a group of teachers and make decisions. It is a really good experience. Everything that involves the building is brought to the IIC. We make a lot of decisions about the curriculum while we are sitting at the table. Some of the administrative problems are also discussed. It is a real help for me because there is a sharing of responsibility. I make out an agenda and the unit leaders are allowed to invite anyone they would like. I take notes at the meetings but we do not produce any minutes.

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The SPC had not been established due to the fact that there was only one multiunit school. However, the principal was confident that one would be established once more multiunit schools were implemented. Internal characteristics, procedures, and concerns constituted the subject discussed in the second half of the interview.

A close working relationship was described with the elementary school supervisor. A team approach and delegated responsibility for decision making characterized working relations with unit leaders and teachers. He stated,

> (Do you see the unit leaders preventing you from talking with teachers?) There are some problems that I can leave with the unit leader and then I will have more time to talk with the teachers. (Do you see the teachers having to make more decisions now?) The decisions are being made by the team, they talk things over, this is definitely the best thing that ever happened to elementary education. The team approach is the best.

Communication with the superintendent was estimated to be twice a year whereas communication with the elementary school supervisor was on a weekly basis. He described the situation as follows:

> The elementary principals don't have much contact with the superintendent. The elementary supervisor keeps him informed. I probably talk to the superintendent twice a year and the elementary supervisor once a week.

The impact of IGE/MUS-E on the role of the principal was explained and the addition of a full-time secretary was stressed as having produced a significant change in the amount of time available for working with teachers. A more structured role, however, was described. He stated,

> I think my role is becoming more structured now. The more you involve teachers, and the more team work you have then the more structured you have to be. MUS-E is a very structured program because you have to use a team approach. Scheduling is highly structured, schedules become a major problem.

He explained that he was able to devote 70 percent of his time to IGE/MUS-E activities and he stated, "I am free to get involved in instruction matters now." He outlined the skills and experience needed to be an IGE/MUS-E principal as follows:

> You should have skill in implementing differentiated staffing, using the variety of skills that the staff may have, and selecting unit leaders. You have to be able to know what IGE is. You should be able to evaluate and assess. You have to have knowledge of what multi-age grouping means and how to select kids for a unit. You have to have skills in working with teachers in an IIC meeting. You have to be able to share in decision making. If you are used to working alone for a number of years this can be very difficult. You need to know how to pull everyone together. Knowledge of behavioral objectives and different modes of learning are very important. You need to be flexible, change things in the middle of the stream. Last, I think you need to be able to fit kids in the time space that you have allowed. Personally, I feel I have a long way to go before I get all these skills.

A self-assessment of his influence resulted in a description of the support received from other principals in the district. He stated,

> I have quite a bit of influence. I get a lot of calls from other principals. I felt that they were supporting me when I went into the MUS-E. This was a great help to me, it made me feel more courageous.

The past innovative performance of the district and the reactions of the community were described as follows:

> We are a very cautious system, tight-fisted. We have a very low per pupil cost so when it comes to anything that may be innovative the district first looks at what is happening in other districts before they bite. A lot has to do with timing. The new superintendent is supportive of MUS-E and the administrative council acts like a team. (How has the community reacted to MUS-E?) Tremendous! Two years ago I began talking to parents about MUS-E. I think this forward planning really paid off.

At the conclusion of the interview a number of needs and suggested procedures for implementing IGE/MUS-E were mentioned. The effectiveness of the TEI's workshop held at the district was described in terms of a prototypic model to be used by districts interested in IGE/MUS-E. He described the workshop as follows:

> The best thing this district ever did was to set up the semester-long workshop on MUS-E. The impact of the workshop was really great. The university people were here for a whole semester. That was the semester that the administration was convinced on going with MUS-E. The course had a simulation of the IIC and unit meetings. Problems were brought out during the course on how to get along with each other. The course taught us that you shouldn't say I don't get along but rather you need to say I must get along.

The role of the R & D Center and functions upon which they should concentrate were outlined as follows:

> I feel the R & D Center has to get out and sell this concept to the schools. The two day overview they gave was good. Now that MUS-E is not really very innovative the R & D Center should develop more subject areas so teachers can use them. Teachers will not write out behavioral objectives in every curriculum area. We should be able to use our own materials and the R & D Center should develop the curriculum more efficiently. If their materials cost too much money the district will not buy it. (Do you think the R & D Center should get into more classrooms?) Yes, how do we know if we are doing the right thing? We could be completely bombed out and we wouldn't even know it. The Center wouldn't know it either unless they came out here.

The IGE/MUS-E program was considered to have been adequately evaluated. He stated,

> (Do you feel that MUS-E has been evaluated adequately?) Yes, especially the Wisconsin Design which I think was developed especially to fit into the multiunit schools. The teachers feel that the kids are more relaxed, attendance is better and kids seem to have an improved self-image. We have less discipline problems now.

The role of the SEA was described as one which should focus on the funding of IGE/MUS-E implementation efforts. He stated, "The SEA needs to develop some type of program from which we can request funds. They're the ones with the money." The union was mentioned as a potential source of leverage for securing unit leader release time and salary adjustments.

In summary, the principal perceived the TEI and the R & D Center as sources of expert assistance. He indicated that the R & D Center should evaluate the operations of particular multiunit schools in order to provide feedback and assure that proper adoption had taken place. The new role of the principal was described as being instructionally oriented. The unit leader in School C substantiated the principal's concern for greater R & D Center involvement.

The Unit Teacher. The unit teacher had earned a bachelor's degree and had been a unit teacher for one year. He described his involvement with the R & D Center, SEA, and TEI. Attendance at one inservice session where a R & D Center representative discussed the Wisconsin Design was described as follows:

> (Was the speaker very good?) No, not really. Too theoretical! I have read some of their publications and I have seen some of their films while I was taking courses at the university.

Annual face-to-face contact with the R & D Center was estimated. He recalled that the SEA had visited the school once but he emphasized that there was no regular contact. Activities with the TEI included taking courses, helping student teachers, and using IGE films. He described the TEI involvement as follows:

> A lot of my course work dealt with IGE and that is about the extent of my contact. [One professor] comes here once in a while to check out his student teachers. [Another professor] brought a class here once. I borrowed film strips for our inservice from them. I raise problems in the class that I have once a week.

Face-to-face contact with the TEI was estimated to be once a week in class and once a month at the school. The I & R Units, the IIC, and the lack of an SPC were discussed.

He described the I & R Unit in which he was a unit teacher and the procedure for hiring the unit leader as follows:

> We have 165 kids in our unit. It spans for two grade levels and we have five staff teachers and one student teacher. The students have approximately a four year age span. We do not have an intern but we do have an instructional aide. All the units are similar. (How were the unit leaders selected?) The unit leader was hired for the job. He had been in an MUS-E before. They don't get release time or extra pay. You should realize that we are not very non-graded. Most of our teaching is with the same grade. There isn't much cross-grading. There is team teaching however. We hope to be cross-graded next year. We have to work on the curriculum to set things up for cross-grading. This system has standardized tests so sometimes that makes it difficult.

The IIC was considered established and he estimated that it met weekly for two hours. The SPC, however, was not established but he felt that it would be initiated. Internal procedures and concerns were addressed as the last topic of the interview.

He described a close working relationship among the members of the I & R Unit. He described the need for unit planning time as follows:

> Our team is very close. We work together very well and we have release time to plan unit activities. Sometimes we stay past school closing time. Roughly we spend two hours a week on planning in a formal sense. (Is this adequate?) No, it is not adequate for setting up a unit. An outline of a whole unit takes at least six unit meetings.

He estimated that communication with the unit leader was at least three to four times per week. He explained the need for close cooperation by noting: "If one person changes his schedule, then it affects all of us." He also estimated that communication with the principal was at least twice a week. He explained the unit's attempt at specialization and the concomitant difficulties associated with scheduling. He stated,

> We sort of specialize. We want the kids to get used to the idea that they are a unit. It is hard for kids who aren't used to it. Right away we called the fifth

> grade Unit D. It takes a lot of work to prepare unit materials. This year one teacher does physical education, one teacher does music and one teacher does art for each of their respective grades. (Does one person take physical education for the whole unit?) No, we hope to do that but it takes a lot of scheduling. You need the gym, music, and art rooms at the same time. (Are you using the Wisconsin Design?) Yes, we cross units and everything.

The interconnectedness of unit activities was explained as the reason for a high degree of structure within the unit. He noted,

> You don't make any changes without affecting other people. You have to check with every teacher. We informally meet to work this type of thing out, but it is very structured.

IGE/MUS-E activities were estimated to take 20 percent of his time. He outlined the experiences and competencies needed to be an effective unit teacher. He stated,

> I think graduate courses in IGE are very helpful. I had never heard of IGE as an undergraduate. You need to have diagnostic skills, you need materials to pretest and diagnose. You have to be willing to share, give, and be flexible. You have to realize your program is not the only one. (Do you feel you get recognition?) Yes, you get recognition from your fellow teachers.

He assessed his influence in terms of his competence and knowledge of IGE. He explained why he felt influential as follows:

> As a first year teacher it makes a difference with regard to influence. I was depended upon by the unit to help explain the Design because I had had courses on IGE. Right now I am individualizing our math book. In a sense it shows you how much influence I have.

He observed that IGE/MUS-E was the first innovation the district had ever attempted. He concluded the interview by outlining (1) the various steps necessary in the implementation of IGE/MUS-E, (2) the need for more effective training films and materials, and (3) the need for the R & D Center to initiate field observations and evaluations. In addition, he commented on the effects of an open space school. He described implementation strategies as follows:

> You have to set up inservice, you have to release teachers, you have to observe other MUS-Es for at least a week. It is hard to put the theory of IGE all together. You need release time and you should do it very slowly. I would suggest that schools take only one or two subject areas the first year. We teach the other areas individually here. There are a lot of kids you have to get to know.

He described the need for more effective inservice films and materials as follows:

> I gave a short inservice on the Wisconsin Design even though the teachers here had seen the films. The film on the Wisconsin Design needed to be supplemented. The film doesn't show how to use the resource files or the pupil profile cards. The teachers were a little bit scared to try it. I explained the Design to them and how the Design should be set up. It was hard to put all the different aspects together. This is something that the R & D Center should do.

The role of the R & D Center was discussed in terms of the need for field observation and evaluation. He stated,

> (How about the R & D Center doing more?) I am not sure what their role is. I am not sure what the role of the university is for that matter. I would like to see them observe operations here. They can make better suggestions if they saw what was going on. The R & D Center is pretty far removed from their teaching days. (Do you feel that the Center has evaluated the program?) I don't think the R & D Center evaluated it at all. (Is this serious?) Well, it would help schools who are starting if they did evaluate it. The role of the R & D Center is to make recommendations and give advice. They don't have the power to do anything about what individual schools are doing.

The effects of the open space configuration were mentioned vis-à-vis the advantages and disadvantages. He described the open space arrangement as follows:

> (How about the physical arrangements?) The open space doesn't bother me. It helps when you walk away from your area because the next teacher may be able to watch your class.

In summary, the unit teacher indicated that greater external assistance was needed from the TEI and the R & D Center. Training films and materials were considered inadequate, and released time was considered crucial.

The interviews from the resource, mediating, and user systems in State III indicated conflicting perspectives with regard to the need for R & D Center, TEI, and SEA assistance. The disparities between user and resource system respondents vis-à-vis the extent of the diffusion of IGE/MUS-E may in part be explained by the minimal contact between user and resource systems. Insight into the internal operations, characteristics and roles, and concerns of the resource system provided a basis for understanding the differences in the perspectives among the systems.

Resource System

The internal organizational practices and the concerns and recommendations of resource system respondents are outlined in this section. Six R & D Center members were interviewed, five respondents were from the implementation unit and one respondent was the former director of the R & D Center. Working relationships, communication, specialization, role structure, time spent on IGE/MUS-E activities, competencies required to fulfill role expectations, influence, R & D Center innovativeness, and needs and recommendations for diffusing IGE/MUS-E were discussed.

Working relationships with the implementation unit varied from frequent to infrequent interaction. The extent of interaction was reported to be a function of the focus of each member's role. One member stated,

> I see the operationally involved staff about two to three times a week. My relationship with other members tends to be at a planning level rather than operational--I have visited a few schools with the implementors.

Another implementation unit member explained that the amount of intra-unit communication had recently decreased. He stated,

> We haven't had any meetings--the unit doesn't function like it did before. It has been a case of people going off in different directions.

A contrasting perspective was provided by another member who stated, "I work more closely with different people than I did before. There is a broader communication now." A fourth member asserted that the entire unit "worked very closely" but his assertion was contradicted by another respondent who stated,

> At first, I worked extremely close with everyone in the unit, that was when we worked as a total implementation team. We scheduled together and we worked together. However, within the last year we have had only one staff meeting. We don't know what is going on within our own unit. Communication is almost non-existent.

The former director of the R & D Center described a close working relationship with members of the implementation unit as follows:

> I worked very closely with the whole implementation staff. I essentially formulated the implementation plan. I put it into effect. I sat in on their meetings--three times a week.

Working relationships were described as close by three of the five implementation unit members and the former director of the R & D Center reported a high degree of involvement with the implementation unit. Communication with the administrator of the implementation unit and with the former director of the R & D Center was reported in varying frequencies by the respondents.

Communication with the implementation unit administrator was estimated to be daily by three of the unit members. One member, however, distinguished the type of communication and frequency as follows:

> I communicate every day with the unit administrator on an informal basis. A type of friendship communication. Formal communication is perhaps two to three times a year and then it is confirmation of something, not input from me.

Communication with the R & D Center director ranged from none to twice a week. The frequency of communication with the R & D Center director and with the administrator of the implementation unit was related to the two areas of specialization among the implementation unit staff.

Two major activities were described by implementation unit members--working with states and universities. Three members were involved with operational activities which were composed of awareness sessions, implementation workshops, and onsite visits to multiunit schools. Two members were involved with planning activities which focused on national implementation strategies, SEAs, and TEIs. The three members involved with conducting workshops and onsite visits accentuated the distinction between field operations and planning. One member responded with respect to the roles of the implementation team members as follows:

> What do you mean by an implementation team? Three of us do all the workshops, put out all the materials, do all the travel, and do all the onsite visits.

Another member asserted that there were more "chiefs than Indians" in response to the question of specialization within the implementation unit. The two members involved with planning activities, however, did not describe the difference in the focus of their roles in the same tone as the operationally involved respondents. One member stated that his role concentrated on planning at a national level. Another member described the difference in the focus of the implementation unit as follows:

> We have a team which works with state coordinators and LEAs and the other team works with TEIs and SEAs. The former deals with implementation activities, the latter deals with negotiation with SEAs. Another member works with me on a national level planning and negotiating.

The specialization within the implementation unit was described as field or planning oriented. This distinction was stressed by field oriented members who viewed the differences in role expectations with dissatisfaction. Descriptions of the structure of each member's role, however, provided a homogeneous view of the implementation unit.

An undefined and unstructured role was reported by most of the implementation unit members. One member stated that structure was provided by the federal guidelines under which the unit was funded; however, specific details were felt to be unstructured. This view was reflected by another member who stated,

> My role is very flexible within a structure, I know what the objectives are, that is the structure, but how I do the objectives is very flexible. My job isn't routine.

Another member assessed the structure of his role as minimal; he stated, "My role is relatively undefined." A transition from a structured, task oriented role to an unstructured, goal oriented role, was described by another member. However, one respondent expressed dissatisfaction with ambiguity associated with his role. He stated, "When I came to the Center my job was undefined, I tried to get it defined but no one would." The former director of the R & D Center expressed the view that the need for role structure and leadership was dependent upon the maturity of the organization. He described the distinction as follows:

> A center director may go two ways; a person with the ability to conceptualize programs and strategies and identify people to move ahead with products. Perhaps a more effective one in a more mature institution is a role whereby a climate is defined and mechanisms developed for having individuals define their own programs.

The consensus among the implementation staff that their roles were unstructured was accompanied by dissatisfaction on the part of one member. The distinction between role structure and the maturity of the organization was stressed by the former Center director, the implication being that the less mature the organization, then the greater the need for structure.

The allocation of time spent on activities involving IGE/MUS-E was reported by the implementation unit as ranging from 5 to 100 percent. Members involved with national implementation concerns reported that 20 and 5 percent of their time was spent on IGE/MUS-E whereas two members involved with implementing IGE/MUS-E estimated 100 percent and one member estimated 80 percent of the day was spent on IGE/MUS-E. The former director of the R & D Center estimated that 8 percent of his time had been allocated to IGE/MUS-E.

Resource system interviewees outlined a variety of skills and experiences needed to effectively perform their roles. The emphasis given to specific skills and personal characteristics reflected each respondent's concern for role effectiveness and concomitantly, a number of difficulties and/or barriers they had encountered in fulfilling their roles. Two members stressed the need for personal experience in a multiunit school prior to fulfilling an implementation role. One member stated,

> I strongly feel that you have to have been in a MUS-E before you can tell someone else how to run it. Without that you would go over like a lead balloon during inservice.

Another member reinforced the need for practical MUS-E experience as follows:

> One should have actual experience in the multiunit school. This experience is a must, the reason is that if you are going to change teachers then your credibility is minimal if you are looking at change from a textbook standpoint. If you haven't actually experienced MUS-E you may get away with telling principals what to do and telling university types about it, but you won't get away with telling teachers about it. They will see you as a university type and cut you off.

Being able to work with a variety of people was stressed by most interviewees. However, one member expressed dissatisfaction with the amount of time required to work with principal investigators within the R & D Center. He stated,

> You have to initiate patience. You can't make decisions, you got to have meetings with PIs. They provide all the serious input. The PIs, since they are professors, can't be told anything. The people who run the Center are not the employees, they are the part-time PIs. Patience and interpersonal skills are really taxed here.

Being able to work with people was expressed by two members who stated,

> You can't be pushy or aggressive, you have to have a soft sell, subtle approach... . You have to be able to click with people.

The former director of the R & D Center also expressed the importance of working with, and respecting a wide variety of people. In addition to patience and working effectively with people, one member mentioned the ability to critically evaluate outcomes and processes. He stated,

> You have to have the attitude of looking over what you have done, questioning your techniques in order to improve them, and trying to improve yourself.

The skills and experiences reported by the resource system respondents as necessary in fulfilling their roles centered upon (1) practical experiences in a multiunit school, (2) effectively working with a variety of people, and (3) critically evaluating role outcomes and processes. An assessment of individual influence produced almost a consensus among resource system respondents. All but one interviewee expressed a high degree of influence vis-à-vis their roles. One member stated that the change of R & D Center directors had increased his influence. Another member explained that with respect to the specific expectations of his role he had considerable influence in that other members deferred to his judgment. The former director of the R & D Center felt that he had "very strong" influence with respect to the implementation strategy of the R & D Center.

All of the resource system respondents felt that the R & D Center

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was an innovative organization. One member made a distinction between innovative management and innovative products. The former was considered uninnovative whereas the latter was considered extremely innovative. The former director of the R & D Center expressed the opinion that the management of the R & D Center was innovative since there were no models or precedents to follow in staffing or organizing the R & D Center.

The resource system respondents outlined a wide variety and comprehensive list of needs and recommendations with respect to improving the implementation of IGE/MUS-E. The general strategy followed by the R & D Center (awareness sessions, implementation workshops, and maintenance visits) was considered adequate by most members. However, deficiencies were noted in specific areas.

Needs and recommendations expressed by the resource system respondents centered upon internal management and implementation processes associated with IGE/MUS-E. Internal management needs, reported by three implementation unit members, dealt with intra-unit communication, and with overall R & D Center structure. Communication needs within the implementation unit were described by two members. One member stated,

> The needs that we have are really in-house implementation team needs. We need a team that really works together--we don't need any more closed door sessions.

Another member stated, "Communications must be developed within the implementation unit." In addition to intra-unit communication, two members expressed the need for improved communication and cooperation throughout the R & D Center. One member explained the need for developing inter-unit communication as follows:

> We have to do in-house communication between components within the R & D Center before we do national implementation. The implementation project is a bastard within the university. The components are all associated with academic departments, we are not associated

> with academic departments so we are not involved with other components. When I am out in the field, I am asked about reading, math, etc., and I don't always know what they are doing since there is no communication between components and the implementation unit.

Another member described the need for a formal mechanism for assuring inter-unit communication as follows:

> We need a formal mechanism through which we can propose implementation strategies and have input into these strategies from people responsible for developing products. This way they'll have a part in the planning of the implementation strategies. Up to this time there hasn't been any mechanism. Both sides, the developers and implementors, went their own way and as a result both sides had ill feelings. We need a sounding board for overall Center strategies.

The former director of the R & D Center stated that developers and implementors of R & D Center products had been working cooperatively and effectively. He stated,

> There is a very close interface between professors involved in development and implementation. These professors have participated in implementing and formulating strategies. There is a tendency now for things to draw apart.

Greater structure and explicit role definitions were outlined as needs by one implementation unit member as follows:

> I think the objectives and mission of the Center needs to be examined and a program built around it. At the beginning we had no controls on dissemination, this was a mistake, we had no evaluation, we didn't have criteria to evaluate. The role and responsibility of each person should be explicitly stated and mutually agreed--closure should be reached--jobs should be defined.

Internal management needs were expressed by four implementation unit members. Communication within the unit and between the unit and other components, and greater role structure were mentioned. In addition to internal management needs, implementation needs were expressed for the external outreach and procedures of the R & D Center.

The overall implementation strategy of the R & D Center was considered to be highly effective by two unit members and it was expanded upon by the former director of the R & D Center. One unit member

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affirmed the need for R & D Center-SEA-TEI-LEA linkages as follows: "An important element is well planned and well managed inter-institutional relationships, cooperative ones." Another member reaffirmed the need for R & D Center-SEA-TEI-LEA linkages as follows:

> The only way you get an innovation successfully established in the local school is to use a model that includes LEAs, TEIs, and SEAs. Schools maintain the innovation but they need help from TEIs. That is where the vast reservoir of capability lies. They are the ones that train people for new roles. They also provide maintenance inservice, and help with specific problems. If you don't have all three connected then you are doomed. SEAs can't do much to help but they can't be disregarded because they can kill your effort. I am completely convinced of this model.

The need for one organization to be responsible for implementation was expressed by one member as follows: "Any product needs to have one institution that has implementation as its priority and commitment. Without that the product won't get very far because nobody has a vested interest to put resources into it." The former director of the R & D Center expanded upon the roles of the institutions involved with the diffusion of IGE/MUS-E and he emphasized the need for intermediate agencies to carry out the implementation function. An additional party, introduced into the R & D Center-SEA-TEI-LEA relationship, was mentioned by the former director--the profit-making publishers. The role of the intermediate agency (SEA or TEI) was outlined by the former director as follows:

> Intermediate agencies must identify what is best for LEAs and then they must make possible the selection of the products and strategies. They should do more than say, "Here are three or four alternative patterns and here is how effective they are"; they have to do more than just disseminate. They must also be able to help potential consumers identify possible results of actions.

The need for evaluation was raised by two members, explained by the former director, and considered to be adequate by one member. The need for evaluation was attested to by one member who asserted that the lack

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of evaluation hindered implementation. He stated,

> MUS-E needs more evaluation on very specific aspects, in fact it needs quite a bit. (Do you see this as a critical issue?) Yes, it is a crying need, people out in the field are demanding evaluation. The Center should initiate some form of evaluation. I don't know if anything is really being done. (Do you see this as related to your impact as an implementor?) Yes, maybe we should change some of our techniques as far as MUS-E is concerned. There may be five thousand MUS-Es next year, but how many are really meeting the criteria? You need some degree of control.

A second member expressed the need for more follow-up in response to the topic of evaluation. He stated,

> We should spend more time on onsite visits. The teachers are doing this all alone. They need a shot in the arm, reinforcement, and help. The strategy is good except for involving teachers more and follow-up.

The former director of the R & D Center, in response to the question of evaluation, outlined the evaluation role of intermediate agencies and the R & D Center as follows:

> We shouldn't use Center funds to describe or evaluate our potentially competing patterns. There are intermediate agencies now, SEAs, that can fulfill that role. If they can evaluate textbooks for statewide adoption, they can evaluate different alternatives for instruction. A professor who offers a course on MUS-E should do more than just take a description of the innovation and pass it on. He should help evaluate it with his class, look at its affect on learning, etc. Educational administration should also look at alternatives and discuss them with practitioners. (Do you see them evaluating these alternatives?) No, they should make it possible for individuals or groups to evaluate. Users should be able to come to a rational decision over what innovation is best. The SEA and TEI should supply this. We shouldn't help LEAs choose the best innovation.

The evaluation role of intermediate agencies was conditioned on the supposition that the R & D Center should not become involved with specific problems in multiunit schools. Two implementation unit members, in addition to the former director, explained that the position of the R & D Center did not support interference in local problems or concerns. The former director explained the need for noninvolvement as follows:

> The focus of the Center's evaluation should be on the effective-

> ness of its products as opposed to the effectiveness of their use by individual schools. (Specific problems in specific schools are not a concern?) Right. Our role is to conceptualize implementation, to facilitate any product we put out.

The need for noninvolvement in specific local problems was reaffirmed by an implementation unit member as follows:

> The Center isn't concerned with specifics, only with general problems like better trained teachers. We can't respond to smaller problems. Each school is going to have a peculiar set of problems which we ought to stay out of, for example the political scene. If 40 percent of the schools say they are MUS-E but aren't then we should respond. It would probably mean that there is bad implementation which could be controlled by the Center.

Another member stated,

> The Center can't say that schools have to do any specific things. We can only recommend. First the situation is political so we cannot get involved in that type of situation.

The limitation of noninvolvement in local affairs placed on the R & D Center was partially modified by one implementation unit member who expressed the need for greater involvement by teachers during the awareness phase. The lack of teacher involvement at the decision making level was also considered detrimental of the diffusion of IGE/MUS-E. Although the Center's role in assuring greater involvement by teachers was not explicated, the respondent did expand on the need for involvement as follows:

> We have the decision makers at the first conference, then the teachers would get exposed, then they would make a commitment. However, this is not enough, they have to really want to be a MUS-E not just told by the superintendent. I got into some workshops where they don't even know what IGE is, it makes for a poor workshop and a poor school. There should be more involvement by the teachers.

The needs and recommendations explicated by resource system respondents were centered on two major concerns: internal management and field outreach. The first concern focused on intra-unit and inter-unit communication. The need for more effective and comprehensive involvement among unit members and between principal investigators within the R & D Center was emphasized. The second concern, field outreach, focused on the implementation strategy of the R & D Center and the concomitant issues of evaluation and R & D Center involvement in local issues.

The linkage model followed by the R & D Center was considered essential for the diffusion of IGE/MUS-E. The implementation phases of awareness sessions, implementation inservice, and maintenance onsites were felt to be adequate by most members. However, increased onsite visits and teacher involvement at the awareness phase were suggested. Evaluation of MUS-E was perceived as a critical need by three respondents and the lack of evaluation was suggested as a barrier to the diffusion of IGE/MUS-E. Evaluation of IGE/MUS-E in LEAs was seen as unrealistic due to the constraint of noninvolvement in local affairs imposed upon the R & D Center.

Summary

In Chapter III, the data were presented according to the three states selected for the study and according to the organizational affiliation of each respondent. Resource, mediating, and user system respondents reported a number of concerns and they described a variety of practices related to the diffusion of IGE/MUS-E. The questions addressed by the respondents are analyzed in Chapter IV according to the key concepts underlying the study and according to the operationalization of the concepts. Chapter IV also includes a delineation of the major and ancillary findings, presented in the preceding chapter, which form the basis for a series of theoretical propositions. The implications of the findings and recommendations for R & D Center practices and additional research conclude Chapter V.

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Technical Report No. 308 (Part 2 of 2 Parts)

THE DIFFUSION OF AN INNOVATION THROUGH INTERORGANIZATIONAL LINKAGES: A COMPARATIVE CASE STUDY

Report from the Project on Organization for Instruction and Administrative Arrangements

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CHAPTER IV

CONCEPTUAL ANALYSIS AND PRESENTATION OF FINDINGS

The diffusion of IGE/MUS-E was recorded according to the establishment of the three organizational components of IGE/MUS-E: I & R units, IIC, and SPC. The measures of the dependent variable, diffusion, were analyzed in terms of the system affiliation of the respondents: resource, mediating, or user. Following the analysis of diffusion were the independent variables of linkage, structure, and capability. Linkage, an external factor, was analyzed according to the system affiliation of respondents and grouped in terms of the five combinations of intersystem connectedness: (1) resource system linkage reported by mediating and user systems, (2) mediating and user system linkage reported by resource system, (3) user system linkage reported by mediating system, (4) mediating system linkage reported by user system, and (5) linkage between mediating systems reported by SEA and TEI respondents. The internal factors of structure and capability were analyzed according to the system affiliation of respondents and were delineated according to their operationalized characteristics. Major and ancillary findings were distilled from the conceptual analysis and form the conclusions of Chapter IV.

Conceptual Analysis

The conceptual analysis of the data included attention to the following variables: diffusion, linkage, structure, and capability.

Diffusion

Three items, representing the three hierarchical structures of IGE/MUS-E, were constructed in order to measure diffusion. The establishment of I & R units, IIC, and SPC was recorded for each school according to the perceptions of resource , mediating , and user system respondents. Three categories were used to summarize the responses: "yes," "no," and "don't know." The percentage of responses for each organizational administrative component and for each system are illustrated in Table 10.

I & R Units.--Approximately two-thirds of the responses for the I & R Unit item were positive. However, there were differences among the resource, mediating, and user systems. The resource system replied to the diffusion items for all seven schools selected for the study, the mediating system replied to the items for only those schools in their respective states, and the user system responded for only their specific school. Consequently, the level of the system responding to the item was related to the amount of knowledge of the operating characteristics of the schools. The resource system, the furthest away from the schools, registered 63 percent "don't know" responses, and the TEI registered only 12 percent "don't know" responses. In contrast, the user system did not register "don't know" responses for the I & R unit diffusion item. The user system almost unanimously considered I & R units established; however, there were differences among respondents with respect to the degree of establishment. Although an operational definition of I & R unit was used by the researcher,[1] there was considerable deviation and

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[1] See Appendix C for the operational definition of the I & R Unit used in the study.

TABLE 10

DIFFUSION OF IGE/MUS-E AS REPORTED BY RESOURCE, MEDIATING, AND USER SYSTEMS

System	D I F F U S I O N											
	I & R Units			IIC			SPC			% Mean Response		
	% Response			% Response			% Response					
	YES	NO	DON'T KNOW	YES	NO	DON'T KNOW	YES	NO	DON'T KNOW	YES	NO	DON'T KNOW
Resource (N5)	37	0	63	34	0	66	23	11	66	32	03	65
Mediating (N10)												
SEA (N3)	42	0	58	42	0	58	42	29	29	43	10	47
TEI (N7)	88	0	12	93	0	07	65	35	0	79	13	08
User (N18)	94	06	0	100	0	0	88	0	12	94	02	04
% Mean Response	62	02	36	64	0	36	44	20	36	55	07	38

evidence of adaptation as described by user system respondents. For example, unit leaders were more likely than principals or unit teachers to note that there was only partial implementation of the I & R unit configuration. Unit leaders appeared to take direct responsibility for the operations of the unit and consequently they tended to respond to the I & R unit diffusion item from a perspective of critical self-evaluation. However, functional adaptations were usually viewed positively by the unit leaders. In one instance a unit leader had not heard of the term "I & R Unit" even though his descriptions corresponded to the I & R unit operational definition.

Diffusion of the I & R unit configuration was not defined in terms of the effectiveness of the implementation or the efficacy of the I & R unit operations. Consequently, wide latitude was given to the responses so that establishment would not become entwined with effectiveness. In addition, establishment of the I & R unit configuration was not treated according to strict adherence to the operational definition. Adaptations were common and partial implementation was the rule rather than the exception. Consequently, if the respondent felt that the operational definition had been achieved, then the researcher considered diffusion to have taken place. Only 6 percent of the responses for the I & R unit item were negative for user-system respondents. Consequently, adaptations and partial implementation were not considered by the user system respondents as nullifying the establishment of I & R units. The resource and mediating systems did not register negative responses for the I & R unit diffusion item which was due, in part, to their level of knowledge and to their predisposition to view the diffusion of I & R units in a positive light.

The user system respondents registered the greatest percentage of positive responses to the I & R unit diffusion item followed by the mediating and resource system respondents. A comparable finding was recorded for the diffusion item concerning the IIC.

IIC.--Two-thirds of the responses from resource, mediating, and user systems indicated that the IIC was established. However, the level of the responding system was related to the degree of knowledge of the operational characteristics of the schools. The resource system registered the largest percentage of "don't know" responses, followed by the SEA and TEI. The user system was in total agreement that the IIC had been established for their respective schools.

Although the user system registered 100 percent positive response to the IIC diffusion item, there were descriptive discrepancies among respondents. For example, principals tended to view the IIC as established even though they were not unanimous with respect to the need for meeting regularly with the unit leaders. One principal commented that he saw all the teachers every day so there was little need for a meeting every week. Concomitantly, the IIC diffusion item did not address the effectiveness of the IIC or the extent to which the principal's and unit leader's roles had changed. Nevertheless, descriptive responses to the IIC item revealed that some principals were reluctant to transfer decision-making responsibility to the IIC. For example, some principals noted that they retained final decision-making power over the IIC actions and in one instance unit leaders complained that the principal merely used the IIC as a small faculty meeting.

Greater agreement regarding the establishment of the IIC was registered for TEI respondents which was due, in part, to the visibility of the IIC as opposed to the lower hierarchical administrative-organizational component of the I & R unit. In addition, the establishment of the IIC was viewed by a number of TEI respondents as a precondition for establishing I & R units.[2] However, TEI representatives viewed the SPC quite differently from the IIC as evidenced by the 35-percent negative responses to the SPC diffusion item.

SPC.--The highest hierarchical level of the IGE/MUS-E administrative-organizational configuration, the SPC, was the least diffused as indicated by the 20 percent negative responses to the SPC diffusion item. Although user system respondents did not register negative responses to the SPC item, the resource system, the SEA, and the TEI registered 11-, 29-, and 35-percent negative responses, respectively. Less than one-half of all responses were positive for the SPC diffusion item and in addition, 12 percent of the user system respondents were unaware of the SPC.

Although the SPC is prescribed as a precondition of the IIC and the I & R units, it was perceived by 20 percent of the respondents as not being established. Wide latitude was given to the operational definition of the SPC. For example, in one district, unit leaders were not represented at the SPC meeting but they still reported that the district had an SPC. In a number of other districts the SPC had either experienced a name change or it had been adapted to fulfill new objectives. Examples of name changes were (1) System-wide Planning Committee symbolizing the deemphasis of policy formulation and (2) Multiunit School Teacher Committee emphasizing a liaison role with the TEI. The superintendent was cited as the major determiner of SPC functions and the local school board was also noted as a constraining influence.

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[2] Wisconsin Research and Development Center, Performance Objectives for Implementation of IGE/MUS-E (Madison, Wis.: Wisconsin Research and Development Center for Cognitive Learning, n.d.), p. 4.

Mediating system representatives registered only 29 percent "don't know" responses to the SPC item which was due to the visibility of the highest administrative-organizational component of IGE/MUS-E and to the role of the mediating system which tended to place it in interaction with the SPC. Concomitantly, the mediating system registered large negative responses to the SPC item indicating their critical evaluation of the establishment of the SPC.

Although 55 percent of all responses for the three diffusion items were positive, there were differences among resource, mediating, and user systems. The I & R Unit and the IIC items received consistent responses whereas the SPC item, except for the user system, received proportionately more negative responses. In addition, the level of the responding system was directly related to the knowledge of the operating characteristics of individual schools. One source of knowledge was the frequency with which the resource and mediating systems interacted with the user system. The linkage among systems contributed to the awareness of operating characteristics, problems, and adaptations of IGE/MUS-E.

Linkage

Three items, representing the type, mode, and frequency of linkage, were constructed in order to determine (1) the purpose of inter-system connectedness, (2) the manner in which interactions were accomplished, and (3) the quantity of the interactions. Three categories were devised representing the type of linkage--conveyor, consultant, and trainer. A conveyor type of linkage corresponded to the dissemination of information: "The most rudimentary and simplistic linker concept is the 'conveyor', one who takes knowledge from expert sources and passes it on to non-expert potential users."[3] The research, development, and diffusion theory of change considers a conveyor type of linkage between developers of new products and potential users as one of the initial diffusion activities.[4] A consultant type of linkage corresponded to the diagnosis of user system needs and subsequent prescriptions for the remediation of the needs. In contrast to the conveyor type of linkage which focused on transmitting information, the consultant type focused on the means by which objectives may be achieved. The problem solver theory of change emphasizes a consultant type of linkage in that the change agent enters into a collaborative problem-solving relationship with the user system.[5] A trainer type of linkage corresponded to educating the user system, i.e., instilling new roles and behaviors required by the innovation. Although the three types of linkage were not mutually exclusive or distinct, their focus was discernible. The trainer type, however, included the dissemination of information but the trainer's objective differed from that of the conveyor. The trainer was not only concerned with presenting information, he was also concerned with instilling the skills and processes which enable the user system to perform the new roles required by the innovation.

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[3] Havelock, Planning for Innovation, op. cit., Ch. 7, p. 3.

[4] See Chapter I, p. 37 for a discussion of the research, development and diffusion theory of change.

[5] See Chapter I, p. 31 for a discussion of the problem solver theory of change.

The second item represented the mode of linkage, the manner in which interactions were accomplished. Three categories were devised representing the mode of linkage: face-to-face, telephone, and written interactions. A face-to-face mode of linkage, dyadic exchange, corresponded to meetings and visits between systems, and live presentations such as in-service sessions and university classes. Face-to-face interactions were assumed to provide immediate opportunities for feedback and opportunities to promote the necessary understanding of and changes in role expectations. The second mode category consisted of inter-system interactions via telephone. Although interaction by telephone was also a dyadic exchange, the opportunities for immediate feedback and understanding of role expectations were considered less likely vis-à-vis a face-to-face mode. A written mode consisted of correspondence, newsletters, and printed material concerning IGE/MUS-E. A written mode, however, was assumed to lack feedback mechanisms and it was considered less effective than a face-to-face mode for instilling new role expectations and behavior patterns required by the innovation. Havelock summarized the need for dyadic exchanges (face-to-face mode), as opposed to one-way transmissions of information (written mode), in situations where the innovation requires attitudinal or behavioral change: "Two-way transmissions are imperative for the adoption of innovations requiring alterations in attitude of behavior."[6]

The third item represented the frequency of linkage, the quantity of face-to-face, telephone, and written interactions. Frequencies were estimated by respondents for each mode of interaction. In addition, records from the resource system were used to supplement resource system estimations of face-to-face contact with mediating and user systems in the three states selected for the study.

Combination #1.--The external factor of linkage was grouped in terms of the five combinations of inter-system connectedness and was analyzed in terms of the system affiliation of respondents. The first linkage combination consisted of resource system linkage reported by mediating and user systems. Table 11 illustrates the three items of linkage (type, mode, and frequency) between the resource, and mediating and user systems.

I. Type. Although all three categories under the type of linkage were considered by mediating and user system respondents as having been used by the resource system, differences existed among systems. The SEA and TEI reported a conveyor and consultant type of linkage with the resource system. The user system reported a conveyor and trainer type of linkage. The SEA perceived the resource system as a source of information and in turn the recipient of SEA information and views. The TEI perceived the resource system as not only a

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[6] Havelock, Planning for Innovation, op. cit., Ch. 9, p. 40.

TABLE 11

LINKAGE WITH RESOURCE SYSTEM AS REPORTED BY MEDIATING AND USER SYSTEMS

System	LINKAGE									
	Type			Mode			Annual Frequency			
	Convey	Consult	Train	Face	Tel.	Written	Face	Tel.	Written	Total
Mediating (N10)										
SEA (N3)	X	X		X	X	X	25	21	21	67
TEI (N7)	X	X		X	X	X	24	30	8	62
User (N18)	X		X	X	X	X	1.2	1.7	12	14.9
Total	X	X	X	X	X	X	50.2	52.7	41	143.9

source and recipient of information, but also a collaborative partner in the diagnosis of needs and prescription of remediations. The user system perceived the resource system as a source of information and as a trainer of new skills and behaviors.

II. Mode. No differences were reported by user or mediating systems. Both systems indicated that face-to-face, telephone, and written modes were used. However, the annual frequencies of the three categories provided a contrasting view of mediating and user system linkage with the resource system.

III. Frequency. Major differences were reported between user and mediating system in terms of the annual frequency of face-to-face, telephone, and written interactions. The mediating system reported, on the average, more than four times as many interactions as the user system. Face-to-face and telephone interactions were the most frequent for the mediating system, whereas written interactions were the most frequent for the user system. Consequently, the resource system objective of instilling new roles, behaviors, and attitudes within the user system did not primarily make use of the more effective face-to-face mode. However, dyadic exchanges were common between the resource and mediating systems. Mediating and user system linkage, reported by the resource system, produced different results than those reported by the mediating and user systems.

Combination #2.--The second linkage combination consisted of mediating and user system linkage reported by the resource system. Table 12 illustrates the type, mode, and frequency of linkage as perceived by the resource system.

TABLE 12

LINKAGE WITH MEDIATING AND
USER SYSTEMS AS REPORTED
BY RESOURCE SYSTEM

System	LINKAGE									
	Type			Mode			Annual Frequency			
	Convey	Consult	Train	Face	Tel.	Written	Face	Tel.	Written	Total
Mediating (N10)										
SEA (N3)	X	X	X	X	X	X	7	12	16	35
TEI (N7)	X	X		X	X	X	8	24	16	48
User (N18)	X	X	X	X			.5			.5
Total	X	X	X	X	X	X	15.5	36	32	83.5

I. Type. All three types of linkage were reported by the resource system. However, consulting and training types of linkage were reported more frequently by the resource system than by the mediating and user systems. The resource system indicated that conveying, consulting, and training linkages were used with the SEA and user systems. However, the SEA did not report training, and the user system reported conveying and training as the linkage types used with the resource system. The resource system perceived itself as fulfilling, in part, a collaborative consultant type of linkage, whereas the user system perceived a disseminating function being performed by the resource system in addition to some training. Except for the user system, less discrepancies were found with the mode of linkage.

II. Mode. The mediating system was in agreement with the resource system that face-to-face, telephone, and written modes were used for inter-system interaction. The user system, however, reported all three mode categories, whereas the resource system stressed the use of face-to-face interaction. The mass mailing of newsletters and other resource system material was not considered by the resource system respondents as a means for interacting with the user system. Discrepancies were also found between resource, and mediating, and user systems for the frequency of linkage.

III. Frequency. The mediating and user systems reported slightly more than two times the number of interactions than did the resource system. Face-to-face interactions were estimated by the resource system as occurring at approximately one-third the annual frequency of those reported by the mediating and user systems. Telephone and written interactions were not reported by the resource system vis-à-vis the user system. The user system was, for the most part, unfamiliar to most resource system respondents. Consequently, the only interaction reported represented a face-to-face mode once every two years. This corresponded to the onsite visits conducted by the resource system. The user system respondents perceived greater interaction with the resource system due to their attendance at workshops and national and/or regional meetings where resource system members were present. Mediating systems reported frequent interactions with user systems as compared with the resource system.

Combination #3.--The mediating system estimated that annual interactions with the user system averaged 90 times using face-to-face, telephone, and written modes. Table 13 illustrates the type, mode, and frequency of user system linkage as reported by the mediating system.

I. Type. Mediating system respondents reported that conveying, consulting and training linkages were employed with user systems. The TEI focused on training activities and the SEA tended to focus on conveying and consulting activities with prospective multiunit schools. Mostly face-to-face and telephone interactions were used to carry out the training, consulting, and conveying activities.

II. Mode. The mediating system indicated that face-to-face, telephone, and written interactions were employed as the mode of linkage. However, the TEI did not report written interaction, whereas the SEA did describe mass mailings to multiunit schools. The frequency of

TABLE 13

LINKAGE WITH USER SYSTEMS AS REPORTED BY MEDIATING SYSTEMS

	LINKAGE									
System	Type			Mode			Annual Frequency			
	Convey	Consult	Train	Face	Tel.	Written	Face	Tel.	Written	Total
Mediating (N10)										
SEA (N3)	X	X	X	X	X	X	41	52	17	110
TEI (N7)	X	X	X	X	X		52	29	0	81
Total	X	X	X	X	X	X	93	81	17	191

the mailings, however, was estimated to be quite small.

III. Frequency. The mediating system reported an average of 191 annual interactions with the user system. The SEA reported less face-to-face interaction, but more telephone and written interaction than the TEI. The training focus of the TEI accounted for the greater frequency of face-to-face contact with user system members. The mediating system reported greater contact with the user system, as compared to the resource system's contact estimated to be once every two years, to the user system's estimation of contact with the resource system of 14.9 times per year. User system estimations of mediating system contact revealed a number of discrepancies which were due, in part, to the mediating system's estimations being based on the schools in their respective states.

Combination #4.--The user system estimated that annual interaction with the mediating system averaged 17.4 times using face-to-face and written means. Table 14 illustrates the type, mode, and frequency of mediating system linkage as reported by user system respondents.

I. Type. User system respondents reported that conveying, consulting, and training linkages were employed with the mediating system. However, there were differences between the SEA and TEI. The SEA was perceived by the user system as performing, for the most part, conveying activities, whereas the TEI was perceived as performing conveying, consulting, and training activities. The discrepancy between the SEA activities perceived by the SEA and by the user system were due, in part, to the focus of the SEA, i.e., the SEA tended to interact with central office personnel who were not represented by the user system respondents.

TABLE 14

LINKAGE WITH MEDIATING SYSTEM AS REPORTED BY USER SYSTEM

	LINKAGE									
System	Type			Mode			Annual Frequency			
	Convey	Consult	Train	Face	Tel.	Written	Face	Tel.	Written	Total
Mediating (N10)										
SEA (N3)	X		X	X		X	1.2		4	5.2
TEI (N7)	X	X	X	X		X	10.5		1.7	12.2
Total	X	X	X	X		X	11.7		5.7	17.4

II. Mode. The user system indicated that face-to-face and written interactions were employed by the mediating system. The training activities of the TEI coincided with the face-to-face mode reported by the user system.

III. Frequency. The user system reported an annual average of 17.4 interactions with the mediating system. The TEI was perceived as interacting two times as often as the SEA. In addition, the small frequency of SEA face-to-face interaction coincided with the minimal training activities of the SEA. The discrepancy between the mediating system's estimation of interaction and the user system's estimation was due, in part, to the fact that the mediating system estimated interactions for all multiunit schools. The last linkage combination, linkage between the SEA and the TEI, was characterized by a high level of interaction.

Combination #5.--Linkage within mediating systems was reported by the SEA and TEI respondents. SEA respondents reported 78 annual interactions with the TEI, whereas the TEI reported 29.7 annual interactions with the SEA. Table 15 illustrates the type, mode, and frequency of linkage as reported by SEA and TEI respondents.

I. Type. The SEA and the TEI respondents reported conveying and consulting linkages. The exchange of information between the two organizations supported their mutual consulting activities.

II. Mode. Face-to-face, telephone, and written interactions were reported by the SEA and TEI. However, the frequency of the interactions was not evenly divided between the two organizations.

TABLE 15

LINKAGE BETWEEN MEDIATING
SYSTEM AS REPORTED BY
SEA AND TEI

	LINKAGE									
	Type			Mode			Annual Frequency			
System	Convey	Consult	Train	Face	Tel	Written	Face	Tel	Written	Total
Mediating (N10)										
SEA (N3)	X	X		X	X	X	46	29	3	78
TEI (N7)	X	X		X	X	X	12	14	3.7	29.7
Total	X	X		X	X	X	58	43	6.7	107.7

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III. Frequency. The SEA estimated more than two times as many interactions with the TEI, 78 versus 29.7, than did the TEI. Concomitantly, face-to-face interaction with the TEI was estimated by the SEA as being almost four times as great. However, the SEA may have been overestimating the contact with the TEI and the TEI could have been underestimating contact with the SEA. The overall result, however, indicated that there was considerable interaction between the two organizations.

Structure

Four items were constructed to measure structure: (1) internal coordination, (2) hierarchical communication, (3) specialization, and (4) role clarity. Internal coordination was operationalized according to the extent to which cooperation and mutual sharing of tasks and information was present. If the respondent described a close working relationship with fellow members, then internal coordination was considered "high." Minimal cooperation, sharing, and internal interaction constituted "low" internal coordination. Moderate internal coordination was considered as falling between the "high" and "low" measures. Hierarchical communication was operationalized according to the frequency of subordinate-superordinate comminication. Frequent interaction between the respondent and his superordinate was considered "high" hierarchical communication, minimal superordinate interaction constituted "low" hierarchical communication, and "moderate" communication was considered as falling between the "high" and "low" measures. Specialization was operationalized according to the extent to which tasks were divided and grouped into homogeneous role expectations congruent with the respondent's skills. Descriptions of specialization were grouped according to the three categories of "high," "moderate," and "low." Role clarity was operationalized according to the explicitness of the role as perceived by the respondent. Roles perceived as ambiguous were recorded as "low," whereas roles perceived as explicitly defined were recorded as "high." Moderate role clarity constituted the middle ground between ambiguous and explicit.

Over one-half of all responses to the structure items were recorded as "high." Table 16 illustrates the percentage of responses by system and structure category.

Internal Coordination.--The majority of responses to the internal coordination item were in the "high" grouping. However, variations were recorded for the resource and mediating systems. The resource system was evenly distributed between "high" and "low" internal coordination; 40 percent of the responses were in these two groupings. The SEA reported 100 percent "low" internal coordination. The TEI and user system reported 86 and 72 percent "high" internal coordination, respectively. The user system reported the smallest percentage of "low" responses indicating that relatively close working relationships were present. This finding reinforced the previously reported diffusion finding for the I & R unit and the IIC, viz., these two structures provide and call for close working relationships. The lack of internal cooperation described by the SEA may have been due, in part, to the multifarious programs and responsibilities of the agency. In addition, SEA respondents noted that jealousies occurred when atten-

TABLE 16

INTERNAL FACTOR OF STRUCTURE AS REPORTED BY RESOURCE, MEDIATING AND USER SYSTEMS

	STRUCTURE														
System	Internal Coordination			Hierarchical Communication			Specialization			Role Clarity			% Mean Response		
	% Response			% Response			% Response			% Response					
	High	Mod.	Low	High	Mod.	Low	High	Mod.	Low	High	Mod.	Low	High	Mod.	Low
Resource (N5)	40	20	40	60	20	20	100					100	50	10	40
Mediating (N10)															
SEA (N3)			100	33	34	33		34	66	33	34	33	16	34	50
TEI (N7)	86		14	72	14	14	100			14	14	72	68	07	25
User (N18)	72	22	06	56	22	22	38	18	44	72	18	10	60	20	20
% Mean Response	64	15	21	58	21	21	58	12	30	45	15	40	56	17	27

tion and resources were given to the IGE/MUS-E program as opposed to competing and well-established programs. The resource system's distribution of responses indicated that there was disagreement over the amount of internal coordination, whereas the TEI's distribution of responses indicated a "high" level of internal coordination.

Internal coordination was considered to be an essential ingredient of structure. Well-orchestrated roles minimize duplication of effort and conversely optimize institutional effectiveness of role expectations vis-à-vis prescribed goals. Consequently, the TEI's and user system's high internal coordination contributed to the fulfillment of organizational goals. The SEA's and resource system's low and conflicting reports of internal coordination indicated that a focused and organized approach to IGE/MUS-E implementation was either lacking or partially present. Internal coordination provided one measure of structure; however, the extent of hierarchical communication was also considered an essential ingredient for achieving normative effectiveness.

Hierarchical Communication.--The majority of responses to the hierarchical communication item were in the "high" grouping. However, the SEA exhibited evenly divided responses for the item. The TEI and user system reported majority responses in "high" groupings that were, however, less than the percentage recorded for the previous internal coordination item. The resource system made the only reversal from the previous item by reporting 60 percent "high" responses.

Although hierarchical communication and internal coordination were not mutually exclusive, distinct descriptions were obtained.

Superordinate knowledge, interest, commitment, and potential to coordinate subordinate roles was considered to be dependent, in part, on the extent to which information was exchanged between hierarchical levels and/or was solicited from subordinates. A structured approach to IGE/MUS-E implementation was considered to be dependent, in part, on the extent to which decision makers and policy formulators were informed and aware of subordinate roles and concerns. Information is inextricably entwined with the potential for effective decision making and concomitantly, coordination. Consequently, hierarchical communication was considered an antecedent but not the sole condition for internal coordination. For example, the resource system reported 60-percent "high" hierarchical communication but it reported 40-percent "high" internal coordination. The SEA reported 33-percent "high" hierarchical communication but it reported 100-percent "low" internal coordination. The TEI and user system reported larger percentages for internal coordination than for hierarchical communication. Consequently, hierarchical communication was not a sufficient condition for internal coordination, although it did appear to provide some support. Descriptive responses to the hierarchical communication item revealed that autonomy was related to hierarchical communication. For example, one principal claimed that he discouraged central office involvement, and one unit leader asserted that interference by the principal was minimized by reducing the flow of information at IIC meetings. In addition to autonomy, interest and commitment of superordinates, evidenced by the allocation of time for subordinate information flow, was also related to hierarchical communication. SEA respondents revealed that the chief state school officer had little time for receiving and/or soliciting information related to IGE/MUS-E. Principals also noted that superintendents rarely solicited information concerning IGE/MUS-E. Time allocated to IGE/MUS-E activities was measured under the concept of capability which is to be discussed following the last two measures of structure: specialization and role clarity.

Specialization.--The third measure of structure, specialization, received a majority of "high" responses. However, the SEA and user system reported a majority of "low" responses. The resource system and TEI indicated that specialization was "high." The complex roles requiring distinct skills which were associated with the resource system and TEI contributed to the consensus that roles were divided by homogeneous groupings consistent with distinct skills. For example, SEA respondents noted that they were responsible for a variety of educational programs and unit leaders and unit teachers reported, for the most part, that they were responsible for all classroom activities. Some specialization was present among user system respondents, however. A number of units reported that art, physical education, and/or music were taught by one person for the entire unit. Some principals reported that their roles had become more specialized since a variety of responsibilities could be allocated to unit leaders. One principal explained that community relations had become his prime focus while another principal noted that curriculum planning had become his priority. Specialization among unit leaders and unit teachers was, however, perceived as dysfunctional and leading to departmentalization. Teachers had, for the most part, an explicit definition of their roles which excluded subject-matter specialization. Role clarity, the last measure of structure, addressed the extent of explicit role expectations as perceived by the resource , mediating , and user system respondents.

Role Clarity.--The last measure of structure, role clarity, was distributed among the three groupings of "high," "moderate," and "low" without resulting in a clear majority. However, the resource system had total agreement of "low" role clarity and the TEI had majority agreement of "low" role clarity. Conversely, the user system had majority agreement of "high" role clarity. The SEA was evenly divided for the role clarity item. "Low" role clarity for the resource and TEI was related to their complex roles. Specific role definitions were lacking and flexibility and individual autonomy were frequently described by resource and TEI respondents. User system respondents indicated, for the most part, that specific expectations were prescribed for their roles. A number of unit leaders and unit teachers noted that their roles were more explicit due to the interdependence of their activities. For example, teachers involved with skill grouping explained that well-defined schedules were followed and that one teacher could disrupt the activities of the entire I & R Unit.

Since IGE/MUS-E involves several role changes, there were a number of respondents who described initial ambiguity which subsequently evolved into clarity. SEA respondents noted that there were no models, guidelines, or directions provided with their new roles. Unit leaders expressed concern over the marginality of their semiadministrative-teaching position. These and related responses were reported under the capability item labeled needs.

The total percentage breakdown for the four structure items resulted in a majority of "high" responses. The TEI and user system reported majority high responses to the structure items, the SEA reported 50 percent "low" responses and the resource system reported 50 percent "high" responses. The third independent variable, capability, included five measures. Descriptive responses to the capability items not only provided new insight into the internal characteristics of the resource, mediating, and user systems, but they also supplemented a number of the findings reported under the diffusion, linkage, and structure variables.

Capability

Five items were constructed to measure capability: (1) time allocated to IGE/MUS-E activities (F.T.E.), (2) skill and experience required to fulfill role, (3) influence of role incumbent in policy formulation, (4) needs of system for fulfilling role, and (5) past innovative performance of the system. The first capability item, F.T.E., represented the estimated time each respondent spent on IGE/MUS-E activities. The average percent of time for each respondent was combined for each system and reported as the average F.T.E. for each system. The amount of time spent on IGE/MUS-E activities was considered an essential ingredient of the capability of the system. In addition, time was considered to be related to commitment and resources. The second item, skill and experience, represented the abilities each respondent felt were needed to fulfill role expectations. Descriptions of extensive skills and experience were grouped as "high," whereas descriptions of minimal requirements were grouped as "low." The "moderate" grouping represented the middle ground between the "high" and "low" groupings. The third measure of influence represented the respondent's estimation of his impact on policy formulation and decision making. The fourth item, needs, was constructed in order to elicit a wide range of responses concerning those factors inhibiting IGE/MUS-E implementation and/or hindering individual role effectiveness. The last capability item was past innovative performance which measured the system's history of change and, concomitantly, its predisposition for innovation. Table 17 illustrates the system responses to the five capability items.

F.T.E.--The first capability item, percent of day allocated to IGE/MUS-E activities, resulted in a narrow range of time among the three systems. The SEA reported the lowest percentage and the TEI reported the highest percentage of time spent on IGE/MUS-E. The user and resource systems' percentages were the same. SEA respondents explained that they were responsible for a variety of programs in addition to IGE/MUS-E. While resource system respondents indicated that IGE/MUS-E implementation was one focus of the implementation unit, planning and policy formulation were noted as additional responsibilities. TEI respondents described teaching and administrative responsibilities not related to IGE/MUS-E. User system respondents explained that art, physical education, music, and subject areas that had not been individualized constituted non-IGE/MUS-E activities. Principals, for example, indicated that a variety of administrative

TABLE 17

INTERNAL FACTOR OF CAPABILITY AS REPORTED BY RESOURCE, MEDIATING, AND USER SYSTEMS

	C A P A B I L I T Y															
System	F.T.E.	Skill & Experience			Influence			Needs			Past Innovative Performance			% Mean Response		
	% of Day	% Response			% Response			% Response			% Response					
		High	Mod	Low	High	Mod	Low	High	Mod	Low	High	Mod	Low	High	Mod	Low
Resource (N5)	61	60	40		80		20	60	20	20	100			75	15	10
Mediating (N10)																
SEA (N3)	58	34	66		66		34	100				34	66	50	25	25
TEI (N7)	66	29	42	29	72	14	14	100			43	14	43	61	17	22
User (N18)	61	17	77	06	67	11	22	44	28	28	22	11	67	38	33	29
% Mean Response	62	27	63	10	69	10	21	64	18	18	36	13	51	49	26	25

responsibilities had remained unchanged and therefore, they were considered non-IGE/MUS-E activities.

Consequently, a moderate picture of time spent on IGE/MUS-E was described by the respondents. Although additional time may not have been available, the 62-percent time allocation revealed that maximum time was not being allocated. Time was considered an essential ingredient of capability and consequently, capability could have been positively influenced by increasing time allocations. Skill and experience required for role expectations were also moderate.

Skill and Experience.--The majority of responses to the skill and experience item were classified as "moderate." Descriptions of skills and experiences needed to perform one's role fell, for the most part, between comprehensive delineations of skills and assertions that no new skills were needed. However, 27 percent of the responses consisted of extensive descriptions of essential skills and experience. The resource system respondents stressed a variety of needed skills: previous experience in a multiunit school, patience when working with principal investigators, and ability to work well with a variety of people. The SEA respondents reported that the ability to work well with a variety of people was critical for their roles. The TEI respondents outlined a variety of skills and experiences needed to perform their roles: a philosophy compatible with IGE/MUS-E, sensitivity to the needs of local schools, a practical orientation, and a field-outreach as opposed to a research orientation. User system respondents described needed skills and experiences according to the role of principal, unit leader, or unit teacher. Principals stated

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that group dynamics, flexibility, patience, priority determination, and ability to schedule were essential skills. Unit leaders stated that group dynamics, knowledge of IGE/MUS-E, experience in self-contained and multiunit schools, and willingness to put in extra time were essential skills. Unit teachers noted that flexibility, sharing, and being able to work as a team were critical skills. The "moderate" responses to the skill and experience item contrasted with the "high" feeling of influence reported by the third capability item.

Influence.--The majority of responses to the influence item were categorized as "high ." The resource system, TEI, user system, and SEA reported "high" influence, in that respective order. The majority of respondents felt that they had a significant impact on policy formulation and decision making within prescribed spheres. The resource system respondents reported influence within the implementation unit, the TEI respondents reported influence within their departments, the user system respondents reported influence within their unit or school, and the SEA respondents reported influence within their agencies.

Consequently, the high level of influence described by respondents indicated peer respect and acceptance of views and also system recognition of IGE/MUS-E. For example, TEI respondents noted that external funding associated with IGE/MUS-E program was a source of influence and also a source of peer resentment. Resource system respondents indicated that specialized knowledge was a primary source of influence. Unit leaders felt influential by virtue of their position while principals felt influential as innovative leaders. Although influence was "high" there were a variety of substantive needs outlined by the respondents.

Needs.--The fourth capability item addressed the broad topic of needs required to implement IGE/MUS-E and/or fulfill role expectations. The majority of respondents, 64 percent, delineated extensive needs. However, the user system was characterized with 44 percent of the respondents describing "high" needs and 28 percent describing "low" needs. The TEI and SEA respondents agreed that there were many needs and the resource system registered 60 percent "high" needs.

A number of the needs outlined by the respondents were unanticipated and consequently, they provided new insights into the complex inter-connectedness of systems and the consequences of new roles. Needs related to linkage, structure, and capability were summarized by system. Needs which were unanticipated and which were not subsumed by the three independent variables were also summarized.

The resource system respondents described a number of needs related to internal management (structure) and external processes for diffusion (linkage). In a number of instances current practices were asserted to be essential and therefore, were considered needs. Internal management needs focused on internal coordination. Resource system respondents indicated the need for a team approach within the implementation unit and they indicated a need for greater communication and cooperation within the resource system. Confirmation of the need for linkage among the TEI, SEA, and LEA was stressed and the TEI was noted as fulfilling a critical role in the diffusion effort. Related to the need for linkage was the need for followup and evaluation. However, the followup and evaluation needs were considered unanticipated due to the specific focus prescribed for evaluation, the means prescribed for followup and the reasons underlying the evaluation and followup prescriptions.

Evaluation of the research products of the Wisconsin R & D Center was considered a need. However, evaluation of the products being adopted by the user system was not considered a need or the role of the resource system. Concomitantly, followup was considered a need but not the role of the resource system. An intermediate agency was prescribed to fulfill the followup role with the user system. A collaborative, consultant-type role was prescribed for the intermediate agency. In addition, evaluation of individual schools was considered to be a partial function of the intermediate agency. The reason for the distinction between product and process evaluation centered upon political, legal, and financial constraints of the Wisconsin R & D Center. Involvement in user system affairs, concerns, and operations was considered to be politically unwise, legally unsound, and financially unrealistic. Consequently, the role of the resource system in the adoption of IGE/MUS-E and the concomitant followup to assure proper and effective adoption was described as constrained by political, legal, and financial barriers. Mediating system needs were also categorized by internal management and external needs.

The SEA respondents described a number of needs related to internal management (structure and capability), and external processes for diffusion (linkage). Needs related to structure were: explicit role definitions, departmental coordination and cooperation especially with research and evaluation specialists, and long-range planning for the statewide diffusion of IGE/MUS-E. Needs related to capability were fiscal and human resources and the commitment and support of the CSSO. External processes focused on the roles of the resource system and TEI. Needs related to the resource system were: dissemination of information, evaluation data and models, cooperation with /I/D/E/A/, and recognition of the importance of SEAs. Needs related to the TEI were: field outreach versus research orientation, graduate programs in IGE/MUS-E especially for principals, and cooperation with the SEA. Related to the role of the TEI was the need for LEAs to become affiliated with a TEI in their vicinity. In addition to the needs related to the roles of the resource system and TEI, the SEA respondents noted that greater utilization of central office staff was needed in most districts.

There were two unanticipated needs described by SEA respondents. The first need dealt with the significance of student teachers in the linkage between TEIs and LEAs. Student teachers were considered to be significant needs for facilitating the diffusion of IGE/MUS-E. TEI respondents elaborated upon the significance of this need and therefore, a discussion of student teachers follows. The second unanticipated need dealt with the resource system's failure to request feedback information from SEAs. This unanticipated need had implications for the perceived roles of the resource system and SEA. The expectation that the resource system would require timely and comprehensive data concerning statewide diffusion of IGE/MUS-E was held by the SEA but it was not actualized by the resource system. The TEI respondents also delineated needs related to the roles of the resource system, SEA, and TEI.

The TEI respondents described a variety of needs related to internal management (structure and capability) and external processes for the diffusion of IGE/MUS-E (linkage). The need for internal coordination and cooperation was noted by TEI respondents in two states. Faculty support and interest in IGE/MUS-E was considered essential in order to effect internal coordination. Related to the need for coordination were the capability needs of administrative commitment, time for field outreach activities, and adequate staff. The support of the dean was considered crucial for achieving coordination and for influencing policy that would provide time for field outreach activities. Respondents from one TEI felt that at least thirty faculty members were necessary for fulfilling training and consultant roles for the diffusion of IGE/MUS-E.

External needs focused on the roles of resource system, SEA, and TEI. Needs related to the resource system were: support beyond district level, evaluation and followup, dissemination of and access to evaluation data, evaluation models, practical versus theoretical orientation, indepth workshops and initial background presentations, increased face-to-face contact, informal resource system-TEI relationship, emphasis on leadership as opposed to service, capability to respond to user system interest, and accountability of user system through the explication of performance objectives. One need was mentioned with respect to SEA, viz., the fulfillment of a funding and coordination role as opposed to a training role. Needs related to the TEI were: field outreach as opposed to a research orientation, competency-based teacher-education program, and graduate courses in IGE/MUS-E. This last need was based on the fact that teachers were motivated to enroll in graduate courses due to salary increases accruing from post-bacalaureate credits. Two needs were mentioned with respect to the user system: well-informed staff, and a well-trained principal. Unanticipated needs revolved around the user system.

Two unanticipated needs were described by TEI respondents. The first need dealt with the importance of student teachers and the policy of exclusively placing them in multiunit schools. The second need focused on the importance of securing a higher salary for the unit leader position. Student teachers provided a basis for TEI intervention into the user system, and they fulfilled a manpower shortage in multiunit schools. The accepted role of the TEI to supervise student teachers was used as a means for extending the field outreach orientation of IGE/MUS-E oriented professors. Consequently, the placement of student teachers in multiunit schools compensated for the lack of formal mechanisms for consulting and visiting with the user system. However, exclusive IGE/MUS-E placement created antagonisms within education departments between IGE/MUS-E proponents and non-proponents. In addition, the benefits accruing to multiunit schools from the additional manpower provided a visual stimulus for increasing interest in IGE/MUS-E. The second unanticipated need of securing a higher salary for unit leaders was related to the district's commitment to IGE/MUS-E. TEI respondents noted that high district commitment should be evidenced by a visible and tangible award to unit leaders. The significance and visibility of an increased salary schedule for unit leaders was considered a critical factor for influencing neutral and/or antagonistic teachers. Although unit leaders did not mention a salary increase as a need, a number of unit leaders noted that released time was essential.

User system needs were reported by principals, unit leaders, and unit teachers. Principals described a number of needs related to internal management (structure and capability). Needs related to structure were: role definition of the unit leader position and decentralization of authority and, concomitantly, increased authority for the principals to initiate community involvement programs. Capability needs were: space, money, staff, group dynamics training, and central office assistance. External needs focused on the resource system, the TEI, and the community. Needs related to the resource system were: dissemination of evaluation data, followup and assistance, expansion of IGE subject areas, decreased cost of IGE curriculum, pre-adoption courses, and a practical versus theoretical orientation. Principals expressed the need for greater community involvement and the authority to initiate publicity programs.

Unanticipated needs involved paid aides, student teachers, union support, partial district implementation, and reduced TEI visits to multiunit schools. Paid aides and student teachers were considered essential in order to fulfill the manpower needs associated with individualization. Union support was perceived, in a number of districts, as a pivotal factor of IGE/MUS-E diffusion. Transferring teachers, higher salaries and released time for unit teachers, and fulfilling manpower shortages with paid aides were issues which required union support. Partial district implementation was stated as a need in order to provide opportunities for non-IGE/MUS-E proponents to teach in self-contained classrooms. A number of principals asserted that reduced interference from the TEI was a need. They explained that TEI's role did not include visiting multiunit schools and upsetting the daily routine. Unit leaders and unit teachers, however, did not share this view.

Unit leaders reported a variety of needs, a number of which had been previously mentioned by SEA, TEI, and principal respondents. Internal needs were: released time, willingness to perform extra duties and accept higher levels of noise and confusion, involvement at the initial decision-making stage prior to IGE/MUS-E adoption, training in group dynamics, non-traditional staff, teacher and principal commitment, and central administration support. External needs dealt with the resource system, the TEI, and the district. Needs related to the resource system were: increased assistance and dissemination of research and evaluation reports. Needs related to the TEI were: practical IGE/MUS-E courses, increased TEI-user system contact, and practical experience in multiunit schools by professors. District related needs focused on board of education support and pre-adoption visits to multiunit schools.

One unanticipated need was expressed by a number of unit leaders, viz., the role of the unit leader. Unit leaders explained that although they had increased responsibilities they were not given adequate authority to fulfill their responsibilities. The role was considered marginal and undefined. The marginality of the role was illustrated by descriptions of incidents involving unit teacher resentment and open hostility toward unit leaders. The ambiguity of the role was described as being exacerbated by the lack of formal mechanisms and peer and principal support. Formal mechanisms for instituting unit leader authority and for providing releasedtime to fulfill role expectations were considered essential.

Unit teachers reinforced a number of the needs mentioned by unit leaders and principals. Internal needs were: releasedtime for unit leaders, increased planning time, cooperative staff, and a slower adoption pace. External needs focused on the resource system: practical versus theoretical orientation, evaluation, indepth films, and followup.

One unanticipated need was expressed by unit teachers. An open-space physical configuration was considered a positive factor in implementing IGE/MUS-E. Communication, coordination, and sharing were considered to be the benefits stemming from an open-space arrangement. These benefits were considered as facilitating the adoption and continued operation of IGE/MUS-E.

Although a variety of internal and external needs were delineated by resource , mediating , and user system respondents, the majority of the needs were related to either the roles of systems, the roles of individual positions, or to factors which were perceived as enhancing system and/or individual role performance. Disagreement among systems existed with respect to a number of institutional role expectations; mediating and user system described inter-role conflicts resulting from new expectations prescribed and/or required by IGE/MUS-E; and respondents recommended a variety of factors for increasing the effectiveness of their roles.

Past Innovative Performance.--The last capability item focused on the past innovative performance of resource, mediating, and user systems. Historical precedent of innovation adoption was considered to be a positive factor contributing to the performance of new roles and to the implementation of new organizational-administrative configurations. However, resource, mediating, and user systems registered varying degrees of past innovative performance. All of the resource system respondents indicated that the Wisconsin R & D Center was innovative by definition. However, management practices were not considered innovative. Mediating and user system respondents indicated that past innovative performance was "low" for their respective organizations. SEA respondents explained that the traditional role of data collection and regulatory enforcement militated against the initation and the support of innovations. In addition, the lack of slack resources and personnel was also mentioned as an inhibitor of change. TEI respondents were divided between "high" and "low" past innovative performance. Respondents indicating a "high" incidence of previous innovations pointed out the open-school concept, team teaching, and competency-based teacher education as examples. Respondents indicating "low" innovation described traditional staff, lack of funds, and conservative administration as typical barriers inhibiting past initiation of innovations. "Low" innovative performance was described by 67 percent of the user system respondents. Lack of funds, conservative community, traditional staff, and cynical attitudes were mentioned as contributing to the minimal amount of innovation adoption. The cynical attitude cause was explained as stemming from the disparity between initial high expectations and subsequent disappointing results of innovations.

The mean responses of the resource, mediating, and user systems to the capability items revealed wide variations. The resource system registered 75-percent "high" responses, the SEA registered 50-percent "high" responses, the TEI registered 61-percent "high" responses, and the user system registered 38-percent "high" responses. The mean "high" response for all systems was 49 percent. The capability of each system, however was not a summation of item scores. The resource system indicated high influence and past innovative performance. In addition, respondents described relatively "high" needs and skill requirements. However, "high" needs and skill requirements did not necessarily represent "high" capability. For example, resource system respondents noted the need for improved inter- and intra-unit communication and they described some skills and experiences which were not commonly held by all respondents. Resource system capability, therefore, represented a combination of factors which did not lend themselves to a simple grand percentage. Nevertheless, capability responses did discriminate between systems. The resource system was the most capable, followed by the TEI, the user system, and the SEA. The basis for such a conclusion stems, in part, from the percent responses to the influence, past innovative performance, and F.T.E. items. The skill and experience and needs items represented capability to the extent that respondents reporting many skills possessed the skills, and respondents reporting "low" needs had solved many of the problems associated with IGE/MUS-E diffusion.

The skill and experience and needs items contributed more to understanding the concept of capability than they did to providing discriminate measures of system capability. Skill areas identified by respondents decreased as the scope of the system became more defined. The resource system, for example, had the broadest scope, the nation; the SEA had the state; the TEI had the schools in their vicinity, and the user system had the multiunit school.

The needs item not only provided insight into unanticipated barriers hindering the fulfillment of system roles; it also revealed that the mediating system perceived a significant discrepancy between actual and desired conditions. The role of the mediating system, juxtaposed between the resource and user system, was new in itself, and consequently the new role was associated with many needs. The most frequently mentioned need, evaluation and followup, focused on the role of the resource system. However, the resource system did not perceive evaluation and followup as its role. Therefore, system inter-role agreement was lacking with respect to evaluation and followup. Following the evaluation and followup need was the need for a practical orientation expressed by user system respondents. This need was not expressed by the resource and mediating systems and concomitantly, it demonstrated the need for role clarification and intersystem communication.

The dependent variable of diffusion and the independent variables of linkage, structure, and capability provided a conceptual focus for understanding the complex interaction of systems involved with the utilization of knowledge. The utilization of the research product IGE/MUS-E by local educational agencies involved the producers of the innovation, state educational authorities, and professors of education. The nature of the relationships between and among the resource, mediating, and user systems and the consequences of the independent variables on the diffusion of the innovation highlighted the complexity and difficulty of the task facing the Wisconsin R & D Center.

Major Findings

The major findings were presented according to the major questions addressed in the study. A series of five questions constituted the focus of the research. The major findings associated with each question were delineated and followed by a discussion of the ancillary findings.

The first question addressed in the study was:

> (1) What is the nature of the relationships between resource, mediating, and user systems in the diffusion of an innovation?

The nature of the relationships between each system were associated with a common overarching goal, the diffusion of IGE/MUS-E. However, each system fulfilled distinct roles: a leadership role was associated with the resource system, administrative and training roles were associated

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with the mediating system, and a recipient role was associated with the user system. The leadership role of the resource system was supported, in part, by the fact that it was the source of the innovation. A leadership role followed logically since the resource system was the source of expert knowledge concerning IGE/MUS-E. The resource system was, consequently, in a position to extend knowledge, assistance, direction, and purpose to mediating and user systems in the diffusion of IGE/MUS-E.

The leadership role of the resource system defined the relationships with the mediating and user systems. The relationship with the mediating system entailed the funding, in part, of an SEA State Coordinator and the funding of summer institutes at TEIs. Consequently, the resource system initiated new roles for the SEA and the TEI and it provided partial financial capability for the fulfillment of the roles. The resource system also provided the common goal which formed the basis for TEI and SEA interaction.

The relationship between the resource and user systems was characterized by a leadership role on one hand, and a receiver or followership role on the other hand. The resource system provided the initial assistance and direction for user systems adopting IGE/MUS-E. The user system, although having a potential for performing a feedback role, was a relatively passive recipient of resource system knowledge and assistance--at least during the initial stages of change. User system respondents frequently noted the need for subsequent resource system followup, evaluation, and assistance, which was considered an

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indication of the minimum resource system initiated requests for feedback from the user system. In addition, the low frequency of face-to-face and/or telephone contact between the resource and user system reinforced the finding that the user system's relationship with the resource system was primarily that of a recipient of knowledge and information.

The administrative and training roles of the mediating system provided the basis for a collaborative relationship with the resource system and a training relationship with the user system. The collaborative relationship between mediating and resource systems was evidenced by frequent face-to-face and telephone contact and the joint attendance at national and regional meetings. Consequently, opportunities for feedback and two-way interaction were present. The relationship between the mediating and user systems varied for the SEA and TEI. The SEA had an administrative relationship with the user system: funding of multiunit inservice programs, disseminating statewide data, and directing interested user system members to appropriate institutions for direct help with IGE/MUS-E. The TEI had a training and consulting relationship with the user system. Courses in IGE/MUS-E were supplemented by onsite visits and workshops.

The nature of the relationships between each system was a function of system roles and a function of the nature of system interaction. The resource system played a leadership role for all systems and the relationship was collaborative with the mediating system and one-way with the user system. The mediating system fulfilled administrative and training roles and the relationship was two-way between the TEI and the user system and one-way between the SEA and the user system. A description of the characteristics of the interactions among the resource, mediating and user systems provided greater understanding into the dynamics of innovation diffusion through inter-organizational linkages.

The second question addressed in the study was:

> (2) What are the characteristics of the linkages among resource, mediating, and user systems vis-à-vis the diffusion of an innovation?

The type, mode, and frequency of linkage were the three categories used to describe the linkage characteristics. The resource system was reported to have a conveying and consulting linkage with the SEA and with the TEI, and a conveying and training linkage with the user system. However, the resource system reported conveying and consulting linkages with the mediating and user systems in addition to a training linkage with the SEA and user system. The mode of linkage with the resource system included face-to-face, telephone, and written means. The resource system reported face-to-face, telephone, and written means for the mediating system and face-to-face contact with the user system. The frequency of the linkage with the resource system varied from 67 times per year to 14.9 times per year. The resource system estimated the annual frequency of linkage with the mediating and user systems as 35 times per year with the SEA, 48 times per year with the TEI, and 0.5 times per year with the user system. Although system respondents differed in their descriptions and estimations of the linkages among resource, mediating, and user systems, a distinct pattern emerged.

The resource system tended to have frequent face-to-face contact with the mediating system and minimal contact with the user system. The type of linkage tended to be conveying and consulting with the mediating system and conveying and training with the user system. A written mode of linkage was the most frequent with the user system.

The mediating system reported extensive linkage with the user system. Descriptions of conveying, consulting, and training types of linkage, and face-to-face, telephone, and written modes of linkage, preceded estimations of the annual frequency of linkage which ranged from 81 to 110 times per year. However, the user system reported less extensive linkage with the mediating system. Conveying and training types of linkage, face-to-face and written modes of linkage, and an annual frequency of 5.2 times per year were the linkage characteristics of the SEA. Conveying, consulting, and training types of linkages, face-to-face and written modes of linkage, and an annual frequency of 12.2 times per year were the linkage characteristics of the TEI. Although the linkage descriptions and estimations varied for the mediating and user systems, a pattern emerged.

The SEA tended to have a conveying and consulting type of linkage with the user system. The training portion of the linkage attributed to the SEA was minimal as reported by user system respondents. The SEA tended to have face-to-face and written contact with the user system less than once every two months. The disparity between mediating and user system estimations was based, in part, on the statewide scope of the SEA and the selective sample of multiunit schools in the study.

The TEI tended to have a conveying, consulting, and training linkage with the user system. Face-to-face interaction was the most frequent with the user system--once a week according to the TEI or less than once a month according to the user system.

Linkage also existed between the SEA and TEI. The two organizations reported a conveying and consulting type of linkage using face-to-face, telephone, and written means. The estimated frequency of the linkage ranged from 78 to 29.7 times per year. The various combinations of linkage, when taken as a whole, provided a picture of the linkage among the systems.

Linkage among the resource, mediating, and user systems was characterized as follows: the resource system tended to have frequent conveying and consulting linkage with the mediating system, and infrequent conveying and training linkage with the user system, (2) the mediating system had conveying, consulting, and training linkage with the user system on a frequent basis, and (3) the SEA and TEI tended to have frequent conveying and consulting linkage. Figure 7 illustrates the characteristics of the linkage among the resource, mediating, and user systems. The most frequent contact occurred between the TEI and the user system, followed by contact between the SEA and TEI, which in turn was followed by contact between the resource system and the mediating system, the SEA and the user system, and the resource system and the user system. The density of the arrows connecting each system represents the frequency of interorganizational linkages. The direction of the arrows represents collaborative two-way inter-

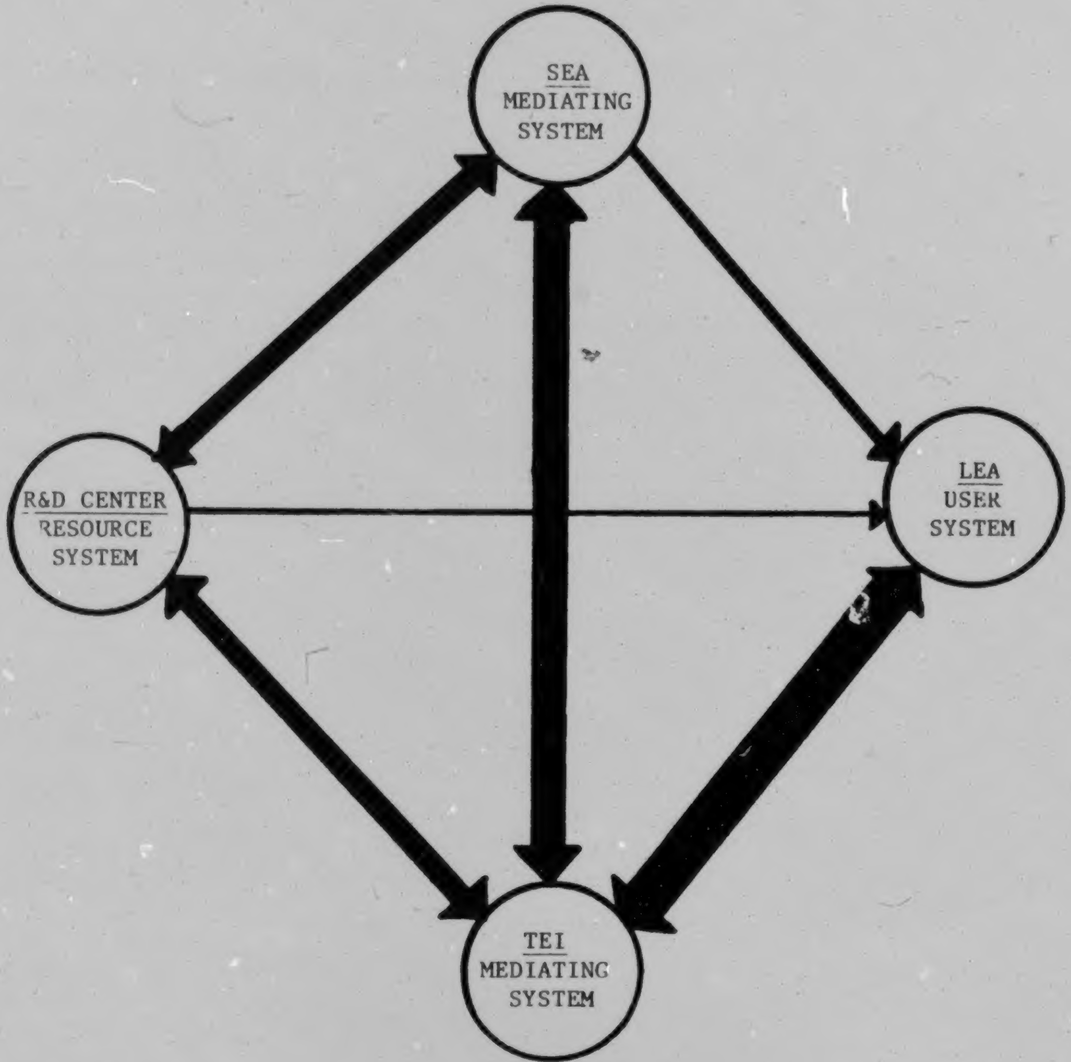
SEA
MEDIATING
SYSTEM
R&D CENTER
RESOURCE
SYSTEM
LEA
USER
SYSTEM
TEI
MEDIATING
SYSTEM

Fig. 7--The Linkage Relationships Among Resource, Mediating, and User Systems

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action. The linkage between the TEI and user system was collaborative in that consulting and training activities were performed. The linkage between the SEA and TEI and resource system was also collaborative since consulting activities were performed. The linkage between the SEA and the user system was characterized as one-way since mostly conveying activities were performed. The linkage between the resource system and the user system was one way due to the primarily conveying activities, the low frequency of contact, and the expressed need by the user system for followup, evaluation, and assistance.

The third question addressed in the study was:

> (3) What are the consequences of the variable of linkage among the resource, mediating, and user systems on the diffusion of an innovation?

The linkage among the resource, mediating, and user systems had an overall impact on the diffusion of IGE/MUS-E and the linkage had selective impact on specific multiunit schools. The overall impact of the intraorganizational linkage was a high percentage of agreement among user system respondents concerning the diffusion of IGE/MUS-E. The consequences of selective system linkage with specific multiunit schools was evident for the TEI and user system. Multiunit schools situated in the vicinity of a TEI and concomitantly, the recipient of extensive TEI linkage, appeared to have high agreement concerning IGE/MUS-E diffusion. TEI respondents were less critical of multiunit schools in their immediate vicinity and which received frequent visits, than they were of multiunit schools which received fewer visits. For example, multiunit schools situated within walking distance of a TEI were considered highly diffused and the frequency of TEI interaction was high.

The agreement between the TEI and user system, reported in Table 10, corroborates the finding that user system and TEI linkage had positive consequences on the diffusion of IGE/MUS-E. The TEI and user system respondents were in closer agreement concerning diffusion than were the resource system and the SEA respondents. The high percentage of "don't know" responses of the resource system and SEA indicated minimal linkage with the multiunit schools selected for the study. Concomitantly, the conveying type of linkage which was reported between the user system on one hand and the resource system and SEA on the other hand excluded feedback and mutual collaboration.

The consequences of linkage on diffusion had a number of manifestations in addition to the degree of agreement for the diffusion items. For example, multiunit schools which had extensive linkage with a TEI tended to have more student teachers, a more favorable outlook of IGE/MUS-E, and a more positive attitude toward external assistance. Multiunit schools which had less linkage tended to be less satisfied with certain aspects of IGE/MUS-E, less positive toward external assistance, and they tended to have less student teachers.

The consequences of linkage between the SEA and the user system tended to be indirect since the SEA was considered by user system respondents to be involved at the district level. However, district policy and commitment toward IGE/MUS-E may have been affected by SEA linkage.

The consequences of resource system and user system linkage were also less direct than TEI linkage. User system respondents, in a number of schools, appeared to have been negatively influenced by resource system linkage. For example, assertions of theoretical orientation, curriculum complexity, and lack of specific implementation strategies were criticisms voiced by a number of user system respondents. It appeared that the user system expected greater linkage with the resource system following the initial IGE/MUS-E awareness sessions and workshops. In those instances where additional linkage was not forthcoming, the user system tended to find fault with the resource system. For example, in one school the principal asserted that insufficient resource system training in a new curriculum had caused him to suffer embarrassment and humiliation in front of the school's teachers. Consequently, expectations for the resource system included ease in the implementation of curriculums. When the expectation was not fulfilled, greater resource system and user system linkage may have prevented false expectations, or conversely, no linkage may have precluded expectations. In a number of other multiunit schools, respondents were proud of and looked forward to attending resource system workshops and conferences. A considerable degree of status was associated with visiting the Wisconsin R & D Center since the majority of unit leaders and unit teachers were not accustomed to professional travel. Resource system user system linkage and its effect on diffusion were difficult to assess due to the low linkage frequency on one hand and high expectations imposed on the resource system on the other hand. In addition, TEI linkage with the user system tended to overshadow the effects of resource system linkage on the diffusion of IGE/MUS-E.

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The fourth question addressed by the study concerned the internal factor of structure and the diffusion of IGE/MUS-E:

> (4) What are the consequences of the variable of structure within the resource, mediating, and user systems on the diffusion of an innovation?

The internal organizational factor of structure within each system was associated with a variety of consequences on the diffusion of IGE/MUS-E. The resource system described low internal coordination and role clarity, and high specialization and hierarchical communication. Low internal coordination adversely affected the potential impact of the resource system on the diffusion of IGE/MUS-E. For example, implementation unit strategies and procedures, carried out in isolation, duplicated system efforts and may have worked at cross purposes with other resource system units. Low role clarity aggravated the objective of a unified and explicit approach toward national implementation, and hierarchical communication positively contributed to the resource system's diffusion efforts. Consequently, there were varied effects of structure on the diffusion of IGE/MUS-E for the resource system. An overall moderate structure was associated with a loss of diffusion potential.

The mediating system was associated with a more distinct structural relationship on diffusion. The SEA was characterized with low structure, viz., low internal coordination among SEA units and personnel, low hierarchical communication between the SEA coordinator and the chief state school officer, low task specialization of the state coordinator's broad role, and low role clarity. The low structure reflected by the items adversely affected the SEA's diffusion efforts by minimizing the potential impact of the organization and the state coordinator.

The TEI, however, was characterized by high structure and consequently, TEI efforts were structurally reinforced. Role clarity, however, was low within the TEI and thereby modified high internal coordination, hierarchical communication, and specialization. The high structure reflected by the items positively contributed to the TEI's diffusion effort and concomitantly, the impact of professors on multiunit schools.

The structure reported by the user system was entwined with the administrative organizational configuration of IGE/MUS-E. Concomitantly, the consequences of structure on the diffusion of IGE/MUS-E had, in part, a different meaning for the user system than for the resource or mediating systems. High internal coordination was associated with the establishment of the IIC and the relationship between unit leaders and unit teachers. Hierarchical communication was also associated with the IIC. Role clarity was, for the most part, necessitated by the interdependence of tasks required for implementing IGE/MUS-E. For example, cross grading and skill grouping required explicit mutual understanding of roles among unit leaders and unit teachers. Without high role clarity, interdependence associated with IGE/MUS-E would have been difficult to achieve. Specialization, however, was low, which reflected the predisposition of elementary school teachers to avoid subject-matter concentration. Consequently, high subject-matter competence of specific teachers was not harnessed to the fullest extent and thereby detracted from the objective of effective staff utilization. The user system reflected high structure which contributed to the diffusion of IGE/MUS-E in that the innovation itself prescribed structure. Greater user system discrimination was provided, however, for the second internal factor of capability and its consequences on diffusion.

The fifth question addressed by the study concerned the internal factor of capability and the diffusion of IGE/MUS-E:

> (5) What are the consequences of the variable of capability within the resource, mediating, and user systems on the diffusion of an innovation?

The consequences of capability were multiple on the diffusion of IGE/MUS-E. The resource system reported high influence and past innovative performance, and they estimated 61 percent of their time was spent on IGE/MUS-E activities. High influence resulted in the capability to provide input into plans and policies which affected the diffusion of IGE/MUS-E. High past innovative performance complemented the resource system's objective of implementing the innovation of IGE/MUS-E. Although the percentage of time allocated to IGE/MUS-E activities was moderate, it did indicate that the majority of time was spent on IGE/MUS-E activities. The skill and experience and needs items, however, modified the potential consequences of high capability on the diffusion of IGE/MUS-E. A number of skills and experiences which were described as needed were not necessarily possessed, and needs associated with internal management and external outreach modified the high capability indicated by the influence and past innovative performance items. Consequently, the effect of capability on the diffusion of IGE/MUS-E for the resource system was mixed but positive.

The mediating system also had varied consequences for the capability items and diffusion. The SEA allocated the lowest amount of time to MUS-E activities, reported the lowest influence, and described the lowest past innovative performance. Competing program responsibility reduced the amount of time available for IGE/MUS-E activities, hierarchical communication and decision-making structures reduced potential influence, and a traditional orientation militated against a concerted IGE/MUS-E diffusion effort. Needs were comprehensive, ranging from internal management to statewide diffusion plans. Skills and experiences, however, were moderate, which indicated higher capability for role performance than for the other capability measures. The overall capability of the SEA was considered low vis-à-vis the potential impact of the SEA on the diffusion of IGE/MUS-E.

The TEI, in contrast to the SEA, reported high capability and concomitantly the TEI had a positive impact on the diffusion of IGE/MUS-E. The TEI reported the highest percentage of time allocated to IGE/MUS-E activities, and they reported high influence. The time devoted to IGE/MUS-E, a partial index of capability, reflected not only personnel resources but also the priority given to IGE/MUS-E activities. The high influence described by TEI respondents facilitated the TEI's diffusion effort by providing for upward communication and input into policy formulation. Skills and experiences needed to perform the role of TEI facilitator were reported as moderate which was considered as positive capability. However, needs were high and past innovative performance was only moderate. Although the comprehensive needs delineated by the TEI respondents also focused on the other system, they nevertheless indicated the need for formal recognition of field outreach activities and for additional resources to carry out the activities. The capability of the TEI was, consequently, reduced by the lack of formal outreach policy and support. The moderate past innovative performance was considered to hinder the potential capability of the TEI to initiate a concerted organizational response supporting IGE/MUS-E diffusion activities. The capability of the TEI, although mixed, had a positive impact on the diffusion of IGE/MUS-E.

The capability of the user system was lower than that of the resource system or TEI. User system respondents estimated that only 61 percent of their time was spent on IGE/MUS-E activities which reflected, in part, time demands imposed by non-IGE/MUS-E activities. Past innovative performance was reported as low and consequently was considered as a negative capability factor. Needs were relatively moderate and they focused on other systems in addition to the user system. Skill and experience was low, which was interpreted as indicating that skills for role performance were not as comprehensive as compared with the other systems and that the respondents felt fairly competent to perform their roles. However, unit leaders frequently noted training needs, which were considered a negative capability factor. Influence was relatively high, which indicated that user system respondents were able to provide input for decision making and policy formulation. Although the overall capability index for the user system was low, each individual item modified the capability index. The user system, however, did not harness all of the potential capability for IGE/MUS-E diffusion. For example, many needs were related to the role of the unit leader, a variety of skills and experiences were considered necessary for improving unit leader role performance, and the lack of an innovative atmosphere based on a history of change tended to militate against IGE/MUS-E diffusion.

The consequences of capability ranged from direct to indirect for each system. In general, the resource system and TEI exhibited high capability which had a positive impact on IGE/MUS-E diffusion activities. However, resource system and TEI capabilities were mixed, and the potential level of capability of both organizations was not considered reached. The user system was also characterized with mixed capability. The positive and negative features of user system capability were interpreted with emphasis on the unit leader, the critical new role prescribed by IGE/MUS-E. Consequently, the user system was considered deviating from the potential level of capability which militated against the potential impact of the state coordinator's role on the diffusion of IGE/MUS-E.

The major findings of the study indicated that (1) IGE/MUS-E constituted and the resource system provided the overarching goal which acted as a reference point for system relationships, (2) frequency of interaction among the systems was, in descending order, TEI and user system, TEI and SEA, resource system and mediating system, SEA and user system, and resource system and user system, (3) collaborative interaction was between TEI and user system, SEA and TEI, and resource system and mediating system, (4) linkage between the TEI and user system was positively related with the diffusion of IGE/MUS-E, and linkage between and among other systems had less direct impact on diffusion, (5) internal structure of TEI, user system, resource system, and SEA contributed, in that order, to the diffusion of IGE/MUS-E, (6) internal capability of resource system, TEI, user system, and SEA contributed in that order to the diffusion of IGE/MUS-E, and (7) internal factors of structure and capability were mixed for the systems and consequently resulted in varying consequences on diffusion. These major findings were extended and augmented by the three ancillary findings and a series of unanticipated findings.

Ancillary Findings

Three ancillary questions provided an additional focus for the research. The major findings were further distilled and reexamined in order to expand the results of the analysis of the data. The first ancillary question addressed the relationship between the independent and dependent variables:

> (1) What are the consequences of one or a combination of the three independent variables of linkage, structure, and capability exhibiting a disproportionate degree of influence on the diffusion of an innovation?

The independent variables of linkage, structure, and capability displayed varying consequences on the diffusion of IGE/MUS-E. The most direct and potent stimulus for successful diffusion, however, appeared to be linkage with the user system. The independent variable of linkage was composed of the type of interaction, the manner in which the interaction was carried out, and the frequency of the interaction. A training and consulting type of linkage, carried out in a face-to-face mode, and occurring on a weekly or bi-weekly basis, appeared to be the greatest influence on diffusion. Linkage was considered as displaying a disproportionate degree of influence on diffusion due to the needs of the user system in implementing IGE/MUS-E and due to the effects of linkage on these needs. Although not all user system needs were fulfilled by linkage, a large proportion of the needs were addressed through onsite consulting and frequent training programs. A number of needs common to most of the multiunit schools visited were fulfilled, in part, by linkage. For example, practical inservice sessions, formal graduate IGE/MUS-E programs, and additional manpower were provided either directly or indirectly through user system linkage with external systems.

Although linkage appeared to contribute the most influence on diffusion, the internal variables of structure and capability influenced not only diffusion but also the external variable of linkage. In order to realize interorganizational linkage, each system required some degree of structure and capability. For example, without internal coordination, the activities of linkage agents would be piecemeal and dispersed, and without sufficient time to perform linkage acts, the relationship between the systems would suffer.

In addition to the influence exerted on linkage, structure and capability also influenced diffusion. This was most apparent for the user system where structure was, in part, entwined with IGE/MUS-E prescriptions. However, for the other systems, the relationship between the internal variables and diffusion was confounded by the linkage variable. The means for carrying out diffusion activities was through linkage; consequently the internal variables of structure and capability were indirect vis-à-vis diffusion but direct vis-à-vis linkage. For example, internal coordination facilitated a focused approach for creating, maintaining, and refining interorganizational linkages. Influence within the system contributed to policies supportive of IGE/MUS-E diffusion and since these policies included some form of external assistance to multiunit schools, influence contributed to linkage. Consequently, the internal variables of structure and capability supported linkage, and linkage constituted the primary means for facilitating the diffusion of IGE/MUS-E. Figure 8 illustrates the relationships between the independent and dependent variables. The linkage variable exerted direct influence on diffusion, whereas the structure and capability variables exerted direct influence on linkage and thereby indirect influence on diffusion. An extension of the ancillary finding concerning the influence of linkage on diffusion introduced the question of which system displayed the greatest influence on diffusion.

The second ancillary question addressed the relationship between the systems involved with diffusion:

> (2) What are the consequences of one or a combination of the organizational systems exhibiting a disproportionate degree of influence on the diffusion of an innovation?

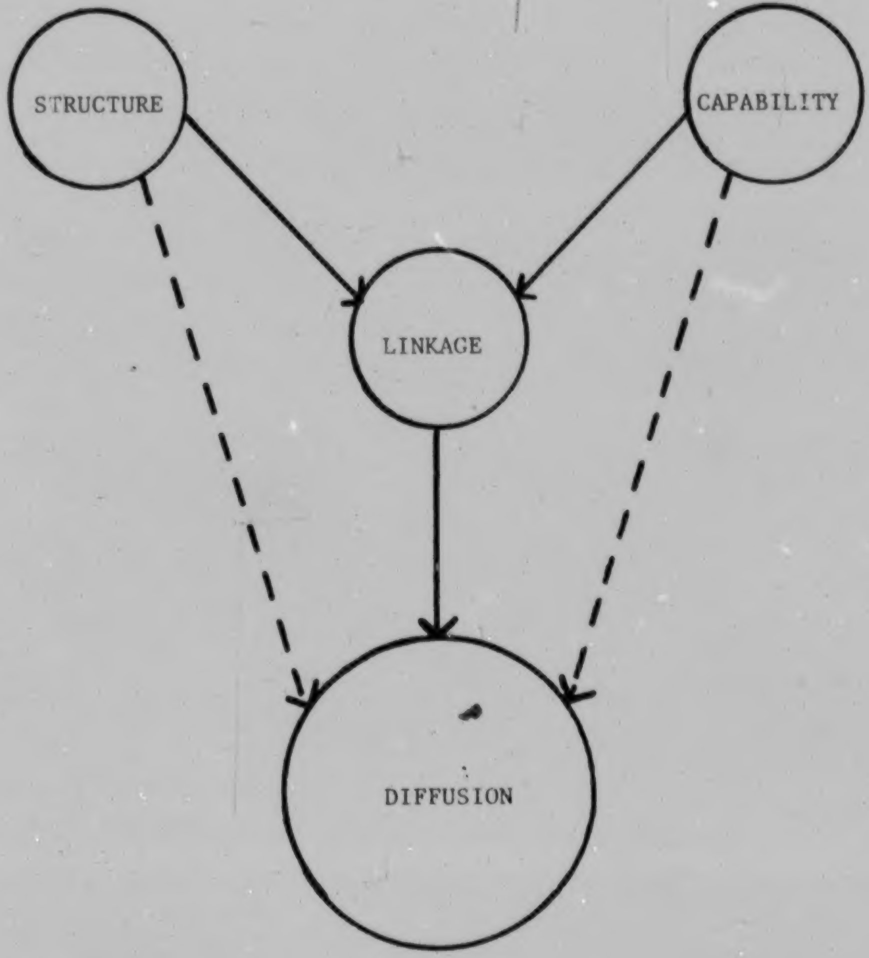
STRUCTURE
CAPABILITY
LINKAGE
DIFFUSION

Fig. 8--The Relationship Between the Independent Variables of Linkage, Structure, and Capability on the Dependent Variable of Diffusion

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The resource and mediating systems exerted influence on the user system and concomitantly on the diffusion of IGE/MUS-E. The TEI, however, appeared to exert the most influence as evidenced by the type, mode, and frequency of TEI and user system linkage. The TEI had the most frequent contact with the user system. Face-to-face contact was most common and training and consulting activities were most characteristic of the TEI and user system linkage. Consequently, the TEI exhibited disproportionate influence on the diffusion of IGE/MUS-E.

The TEI influence was, in part, explained by the scope of their activities with the user system. The TEI's scope of activities encompassed multiunit schools in their vicinity. Consequently, the low proportion of multiunit schools to TEI personnel contributed to the influence of the TEI. Conversely, the scope of the resource system and SEA militated against frequent interaction with the same group of multiunit schools. The resource system's scope included 34 states and the SEA's scope included all the multiunit schools in a particular state. Consequently, the TEI had a narrow scope as compared with the resource system and SEA. The narrow scope of the TEI facilitated linkage and concomitantly, its influence on the diffusion of IGE/MUS-E. The influence of the TEI and the finding that linkage contributed the most to diffusion were addressed by the third ancillary question.

The third ancillary question focused on the combination of independent variables and systems on the diffusion of IGE/MUS-E:

> (3) Is there any one factor and any one system that has the greatest influence on the diffusion of an innovation?

The findings from questions one and two provided the answer to question three. Linkage was the most significant factor and the TEI displayed the most linkage. Therefore, linkage and the TEI were the factor and system which had the greatest influence on the diffusion of IGE/MUS-E. However, the roles of the resource system and the SEA complemented the role of the TEI. The resource system provided funding for institutes and, more importantly, the overarching goal of IGE/MUS-E. In addition, the resource system acted as a reservoir of expertise, materials, and research concerning IGE/MUS-E. Consequently, the resource system complemented and contributed to the TEI's role. The SEA also complemented the TEI by providing funds either directly to the TEI or to local schools which, in turn, used the funds to finance inservice or to provide materials and equipment needed for IGE/MUS-E implementation. In addition, statewide implementation plans, publicity, and CSSO endorsements were characteristic of SEA activities which facilitated the TEI. Consequently, the TEI was the primary organization for diffusion and it was complemented, supported, and reinforced by the resource system and SEA. Figure 9 illustrates the system relationships vis-à-vis the diffusion of IGE/MUS-E. Although the resource system and SEA were secondary sources of diffusion activities, they did exert influence, which is illustrated by the density of the arrows.

In addition to the three ancillary findings, there were six unanticipated findings. The first unanticipated finding was related

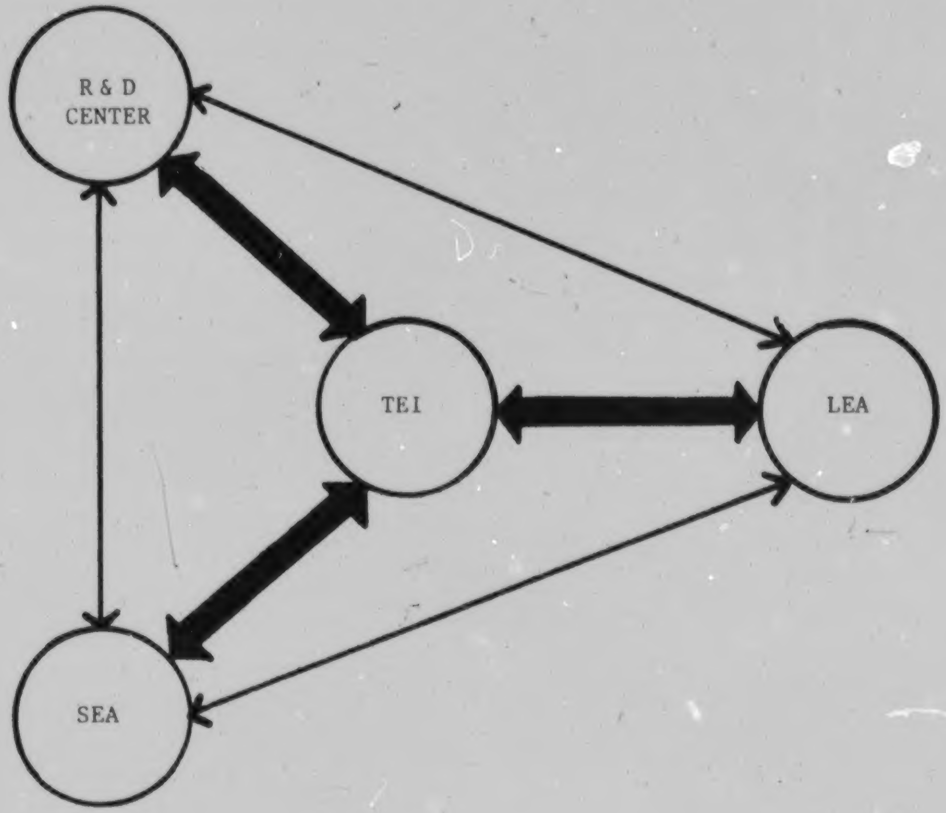
R & D
CENTER
TEI
LEA
SEA

Fig. 9--The Interorganizational Relationships on the Diffusion of the Innovation IGE/MUS-E

to the linkage between resource and user systems. The low frequency of resource-system and user-system linkage, combined with the user system's uncertainty about the resource system's role, contributed to negative perceptions of the resource system in a number of multiunit schools. The user system anticipated and expected a greater amount of resource-system contact. In addition, they expected a practical orientation toward and a detailed presentation of IGE/MUS-E characteristics and operating procedures. Since the scope of the resource system militated against frequent user system contact, the expectations of the user system were not fulfilled. Exacerbating the dissatisfaction associated with the unfulfilled expectations, the user system was exposed on a number of occasions to resource system specialists who had not had experience in multiunit schools and consequently, lacked the process oriented and problem solving approach used by the implementation unit. There were two aspects of this unanticipated finding: (1) low linkage frequency tended to have negative consequences, and (2) orientation of presentations affected reception of information and perception of the source of the information.

A second unanticipated finding was the converse of the first finding. Although not representative of the multiunit schools included in the research, there were indications that there could be too much linkage. A number of principals expressed the desire for less TEI visits which were viewed as disruptive, unnecessary, and inconsistent with the perceived role of the TEI. The role of the TEI was described as training teachers and instilling enthusiasm as opposed to visiting and consulting with multiunit schools. The autonomy of principals, the tradition of minimal external interference, and the attitudes of peers stemming from receiving visible external support may have contributed to the principals' desire for less TEI linkage.

A third unanticipated finding dealt with linkage and capability. The impact of student teachers was mentioned by mediating and user system respondents. Student teachers provided a rationale for TEI access into multiunit schools and they provided needed manpower to multiunit schools. Consequently, student teachers facilitated linkage between the TEI and user system and they contributed to the capability of the user system. Linkage was, in this instance, inexorably entwined with capability--the visible fulfillment of a need was associated with the maintenance of an external organizational relationship.

A fourth unanticipated finding dealt with the consequences of the lack of organizational role agreement--interorganizational role conflict. The resource system was perceived as a legitimate source and initiator of process evaluation of IGE/MUS-E. User system respondents associated a process evaluation role with the resource system and an SEA respondent perceived a comparable resource system role achieved, in part, by the expectation that the SEA would provide comprehensive data for the resource system. However, the resource system did not perceive itself as fulfilling a process evaluation role, nor did the resource system perceive the SEA as a source of evaluation data. The resource system prescribed a product evaluation role for itself and a process evaluation role for an intermediate educational agency. The lack of organizational role agreement, in general, and the lack of evaluation of the individual school's actual implementation of IGE/MUS-E, in particular, exacerbated resource system relations with the mediating and the user systems. Consequently, the lack of role agreement hindered the maintenance and refinement of interorganizational linkages.

A fifth unanticipated finding dealt with the role of the unit leader. The organizational administrative configuration of IGE/MUS-E prescribed the new role of unit leader. However, unit leaders described their role as ambiguous, and as lacking authority. The role clarity of and supportive management mechanisms for the role of the unit leader contributed to inter-role conflict with unit teachers and principals, and intra-role conflict within the role intself. The marginality of the critical role had dysfunctional consequences for the diffusion of IGE/MUS-E. Although the role was differentiated from the unit teacher's role, recognition of additional responsibility was usually not associated with significant remuneration. One TEI respondent emphatically stated that the most significant factor facilitating IGE/MUS-E diffusion was the assurance of a significant salary increase for unit leaders. Such a tangible fiscal award was considered to represent the district's commitment toward IGE/MUS-E, and the district's recognition of the significance of the unit leader position. Associated with direct remuneration was unit leader released time which constituted not only an indirect cost to the district, but also formal recognition of the unit leader's critical role. The marginality of the unit leader role was associated with the internal variables of structure (role clarity and specialization) and capability (time allocated to IGE/MUS-E). Recognition of the pivotal importance of the unit leader role was entwined with the diffusion of IGE/MUS-E. Consequently, agreement concerning the role of the unit leader constituted a critical factor in IGE/MUS-E diffusion.

The sixth, and last, unanticipated finding dealt with the physical configuration of the user system vis-à-vis the role expectations of the innovation IGE/MUS-E. A number of user system respondents noted that self-contained classrooms hindered the non-graded, skill-grouping characteristics of IGE/MUS-E. Conversely, respondents housed in open-space configurations noted that communication was facilitated, specialization was easier, and the non-graded, skill-grouping characteristics of IGE/MUS-E were complemented by the physical configuration. Although the open space was also associated with increased tensions on the part of some unit leaders, there appeared to be a positive relationship between the physical configuration and the processes required by IGE/MUS-E. The open-space configuration also represented a visible and tangible commitment, in part, to IGE/MUS-E. Reversion back to self-contained classrooms was precluded and reversion back to the techniques, role expectations, and management practices associated with self-contained classrooms was thwarted. Consequently, the physical arrangement of the school affected the diffusion of IGE/MUS-E. Configurations supportive of the prescriptions of IGE/MUS-E were ones which facilitated unit leader and unit teacher communication and coordination, ones which facilitated the movement of students among teachers as dictated by skill group, and ones which facilitated the non-gradedness of individualized instruction. The open-space configuration appeared to fulfill these criteria. Consequently, physical configurations, which were consistent with and supportive of the nature of the innovation, contributed to diffusion.

Unanticipated ancillary findings included (1) consequences associated with minimal linkage, (2) role disagreement associated with frequent linkage, (3) capability and linkage interaction, (4) organizational role disagreement concerning process and product evaluation, (5) unit leader role marginality and lack of recognition, and (6) physical configuration's effect on diffusion. These unanticipated ancillary findings augmented the major and ancillary findings of the study and they provided greater insight into the multifarious factors involved in the diffusion of an innovation. The conceptual analysis and presentation of findings provided a basis for the delineation of conclusions, the development of propositions, and the explication of implications. Chapter V draws upon the major, ancillary, and unanticipated findings of the study and extends the findings in order to (1) provide a reference point from which R & D Center policy formulators may refine the implementation strategy of IGE/MUS-E, (2) facilitate the flow of research into practice, (3) stimulate interest and future research in the development of a theory of innovation diffusion through interorganizational linkage, and (4) add to the study of educational administration.

CHAPTER V

SUMMARY, CONCLUSIONS, PROPOSITIONS, AND IMPLICATIONS

In this chapter, the major, ancillary, and unanticipated findings of the study are first summarized. Next, some conclusions and propositions are drawn, based upon the findings. Finally, some operational implications of the study are delineated for the resource, mediating, and user systems and for future research on the diffusion of innovations.

Summary

The translation and institutionalization of the products of knowledge and research into viable educational programs was the generic problem addressed in this study. The innovation of IGE/MUS-E, a development of educational research supported by the Wisconsin Research and Development Center, constituted the focus of the study. The diffusion of IGE/MUS-E from its source, the R and D Center, to its final destination, local schools, was explored in terms of the complex organizational relationships and roles between and among the R and D Center, state education agencies, teacher-education institutions, and local schools. The resource system was the R and D Center. The mediating system was represented by state education agencies and teacher education institutions, and the user system was represented by local educational agencies. The relationships among the systems involved with the translation and institutionalization of IGE/MUS-E was the specific problem addressed by the study.

Three objectives provided a structured perspective for the study: (1) a delineation and explication of the interorganizational relationships among the resource, mediating, and user systems, (2) the development of instrumentation for future empirical measurement of diffusion of IGE/MUS-E, and (3) the derivation of a series of propositions dealing with the diffusion of an innovation through interorganizational linkages.

The conceptual focus and theoretical theme for the study revolved around the relationships between the independent variables of linkage, structure, and capability and the dependent variable of diffusion. A combination of change theory and social-systems theory provided a broad theoretical framework from which a series of major and ancillary questions were posited. A semi-structured interview schedule was used to collect data concerning the questions and to probe for unanticipated barriers, relationships, and concerns associated with the dependent variable, diffusion.

Data were collected during the spring of 1973 from the R and D Center, three state education agencies, three teacher education institutions, and seven local schools located in three states. Thirty-five respondents were interviewed. The responses were compiled, collated, and presented by state, system, and concept. Frequency distributions of percentage responses to the items were constructed for each system and displayed in a series of tables. Major, ancillary, and unanticipated findings were delineated and they provided the bases for the conclusions, propositions, and implications reported in this chapter.

The major questions addressed by the study were:

1. What is the nature of the relationships between resource, mediating, and user systems in the diffusion of an innovation?

2. What are the characteristics of the linkages among resource, mediating, and user systems vis-à-vis the diffusion of an innovation?
3. What are the consequences of the variable of linkage among the resource, mediating, and user systems on the diffusion of an innovation?
4. What are the consequences of the variable of structure within the resource, mediating, and user systems on the diffusion of an innovation?
5. What are the consequences of the variable of capability within the resource, mediating, and user systems on the diffusion of an innovation?

Ancillary questions explored by the study were:

1. What are the consequences of one or a combination of the three independent variables of linkage, structure, and capability exhibiting a disproportionate degree of influence on the diffusion of an innovation?
2. What are the consequences of one or a combination of the organizational systems exhibiting a disproportionate degree of influence on the diffusion of an innovation?
3. Is there any one factor and any one system that has the greatest influence on the diffusion of an innovation?

These questions were explored with the objectives of (1) establishing the nature of the interorganizational relationships that existed between the R and D Center, SEAs, TEIs, and LEAs; (2) discovering the nature of the relationships to the diffusion of the innovation of IGE/MUS-E; (3) providing a reference point from which R and D Center implementation policy and strategy may be refined, including

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the institutional roles of the R and D Center, SEAs, TEIs, and LEAs; and (4) adding to the study of educational administration by the development of instrumentation for future empirical research on the diffusion of innovations and by the construction of a series of propositions as a basis for the future development of a theory of innovation diffusion through interorganizational linkages. An overarching goal, under which these objectives were subsumed, was the narrowing of the gap between educational research and practice.

The major findings of the study were:

1. IGE/MUS-E as designed by the resource system provided the overarching goal which acted as a reference point for system relationships.
2. Frequency of interaction among the systems was, in descending order, TEI-user system, TEI-SEA, resource system-mediating system, SEA-user system, and resource system-user system.
3. Collaborative, two-way interaction was between TEI-user system, SEA-TEI, and resource system-mediating system, and one-way conveying interaction was between SEA-user system and resource system-user system.
4. Linkage between the TEI and user system was positively related to diffusion of IGE/MUS-E, but linkages between and among the other systems had less direct impact on diffusion.
5. Internal structure of the TEI, user system, resource system, and SEA contributed, in that order, to the diffusion of IGE/MUS-E.
6. Internal capability of resource system, TEI, user system, and SEA contributed, in that order, to the diffusion of IGE/MUS-E.

7. Internal factors of structure and capability had varying consequences on diffusion stemming from the mixed results of the items.

The ancillary findings were:

1. The internal variables of structure and capability supported linkage, and linkage constituted the primary means for facilitating the diffusion of IGE/MUS-E.
2. The TEI exhibited disproportionately high influence on the diffusion of IGE/MUS-E.
3. The TEI was the primary organization for diffusion and it was complemented, supported, and reinforced by the resource system and the SEA.

Unanticipated findings were:

1. A low frequency of resource system-user system linkage, combined with the user system's uncertainty about the resource system's role, contributed to negative perceptions of the resource system in a number of user systems.
2. High frequency of TEI-user system linkage, combined with the user system's prescription of the TEI's role which excluded involvement in school operations, contributed to the negative perceptions of the TEI linkage on the part of a number of principals of user systems.
3. Student teachers facilitated linkage between the TEI and user system and they contributed to the capability of the user system.
4. Lack of role agreement between the resource system, on the one hand, and the mediating and user systems, on the other,

hindered the maintenance and refinement of interorganizational linkages.

5. Agreement concerning the role of the unit leader was lacking, and the lack of agreement for and recognition of the unit leader's role hindered the diffusion of IGE/MUS-E.
6. Physical arrangements within user systems affected diffusion --open-space configurations were consistent with and supportive of IGE/MUS-E.

The major, ancillary, and unanticipated findings formed the basis for the conclusions of the study. Empirical studies related to a number of the findings are cited in order to augment the conclusions and strengthen the foundation from which the propositions are constructed. The findings and conclusions are not intended for generalizing to the population of IGE multiunit schools. The exploratory case-study approach was conducive to substantive descriptive responses and discovery of unintended consequences, and not to generalizing to a larger population with levels of statistical significance.

Conclusions

The conclusions of the study, reported by concept, were augmented by empirical studies and contrasted to problem-solver, social interaction, research, development and diffusion, and linkage theories of change. In addition, social systems theory was drawn upon in explaining the roles of institutions and incumbents.

Diffusion

Diffusion was considered to have taken place when the user system fulfilled the performance criteria associated with the innovation of

IGE/MUS-E. The organizational configuration and administrative arrangement prescribed for IGE/MUS-E was the basis for the operationalized definition of diffusion. The establishment of I and R units, the IIC, and the SPC constituted diffusion of the organizational configuration and administrative arrangement of IGE.

Respondents in most user systems indicated that diffusion had taken place, and mediating and resource system respondents tended to either agree with the user system respondents or state ignorance of specific school characteristics. However, the onsite visits to the schools and the semi-structured interview technique provided the researcher with visual and descriptive data concerning diffusion which were unanticipated. The role of the unit leader and the physical arrangement within the school were related to diffusion both directly and indirectly. An open-space physical configuration appeared to facilitate diffusion of I and R units. Frequent interaction and visual contact among the teaching team affected I and R unit operations by facilitating communication, cooperation, and coordination. The open physical arrangement allowed teachers to foster a sharing attitude toward the unit and, conversely, militated against teacher identification with the age and class distinctions of students. Meyer found comparable effects on teacher behavior and attitude.[1] Open-space physical configurations were found to promote interaction, mutual influence, peer reward, and acquisition of new teaching techniques. Consequently, the physical configuration of a school may be related to the diffusion of the IGE/MUS-E organizational and administrative configuration. Although not a sole condition for diffusion, the physical configuration may influence diffusion and therefore deserves attention by diffusion researchers. A more conclusive relationship was found between diffusion and the role of the unit leader.

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[1] John Meyer, et al., The Impact of the Open-Space School Upon Teacher Influence and Autonomy: The Effect of an Innovation (Stanford Center for Research and Development in Teaching, 1971), p. 131, ERIC ED062291.

The role of the unit leader was inextricably entwined with the organizational and administrative configuration of IGE/MUS-E. The I and R unit is managed by the unit leader; the IIC provides a mechanism for unit leader and principal communication; and the SPC, in part, enables unit leaders to have input into major policy formulations. Consequently, establishment of I and R units, IIC, and SPC was entwined with the delineation of the unit leader's role. However, a number of unit leaders described (1) ambiguity of unit leader role and resentment of this leadership position, (2) IIC meetings that were dominated by the principal or that were held infrequently, and (3) SPC meetings that excluded unit leaders or that were powerless vis-à-vis the superintendent or school board. Consequently, a major conclusion concerning diffusion revolves around the operational definition of the establishment of I and R units, IIC, and SPC. Establishment of the organizational structures is not a sufficient indicator of diffusion. The roles of teachers and administrators also should be considered, i.e., a more subtle measurement of diffusion is needed. A similar conclusion was reached by Ironside in his 1972 follow-up of IGE/MUS-E implementation.[2] Ironside noted that questionnaire items were not subtle enough in meeting the need for firm conclusions concerning IGE/MUS-E. Concomitantly, establishment

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[2] Roderick A. Ironside, The Fall 1972 Follow-up (Durham, N. C.: Educational Testing Service, 1973), p. 39.

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of I and R units, IIC, and SPC are not subtle enough indicators of diffusion. A detailed, operationalized series of items dealing with the role of each organizational and administrative configuration and dealing with the role of unit teachers, unit leaders, principals, and appropriate central-office personnel would facilitate fulfillment of the need for forming firm conclusions about IGE/MUS-E diffusion. Appendix E contains a prototypic series of questions which, when expanded, may provide a basis for future empirical research on diffusion of IGE/MUS-E.

The conclusion that diffusion encompasses more than the establishment of organizational and administrative structures was implied by a number of researchers. Havelock noted that the potential effect of an innovation may be eradicated by adaptations[3], Lippitt warned that adaptations require more mastery and skill than adoption[4], and Pellegrin conjectured that adaptations may lead to failure of the innovation.[5] The implication appears to be that diffusion research must be sensitive to adaptations, i.e., measures of diffusion require detailed operational correspondence to the prescribed characteristics of the innovation.

This conclusion has relevance to the theories of change previously outlined. The problem solver theory of change is essentially geared to adaptations of innovations in order to meet the unique needs of the user system. A delicate balance between adaptations to meet user system needs, on the one hand, and adoption of the innovation in pure form, on the other, appears to be a distinction which deserves greater attention by diffusion researchers. The question of adoption versus adaptation depends, in part, upon accurate measures of diffusion and upon a healthy cynical attitude on the part of diffusion researchers which will militate against assumptions that diffusion has taken place. The means for facilitating diffusion introduces the conclusions related to linkage.

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[3] Havelock, Planning for Innovation, op. cit., X, p. 74.

[4] Lippitt, "The Use of Social Research to Improve Social Practice," op. cit., p. 78.

[5] Charters and Pellegrin, Barriers to the Innovative Process, op. cit., pp. 6-7.

Linkage

Linkage was measured according to the categories of type, mode, and frequency. Conveying, consulting, and training were the activities corresponding to the type of linkage; face-to-face, telephone, and written means of interaction constituted the mode of linkage; and the frequency of linkage corresponded to the number of interactions. The major, ancillary, and unanticipated findings concerning linkage provided a basis for the conclusions.

Linkage appeared to be a necessary process for the diffusion of IGE/MUS-E since the latter required relearning of roles, behaviors, and attitudes and the former provided a means for such relearning. However, there appeared to be an optimal level of linkage determined by the user system's perception of the source of the linkage. A curvilinear relationship was implied by the findings that too little linkage resulted in the user system feeling "let down" whereas too much linkage resulted in the user system feeling "invaded by outsiders." This apparent curvilinear relationship was related to the need for institutional role agreement among resource, mediating, and user systems.

The importance of a training type of linkage, a face-to-face mode of linkage, and a mutually-determined frequency of linkage was

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substantiated, in part, by Ironside's 1972 follow-up on IGE/MUS-E installation. Ironside reported that technical assistance was viewed as important in multiunit schools: " . . . there continues to exist a very real need for technical assistance to the schools (and reinforcement of steps already taken), regardless of their installation dates."[6] The means for fulfilling technical assistance include linkage between the user system and a system capable of providing the proper linkage mix, i.e., training type of linkage, face-to-face mode of linkage, and a mutually-agreeable frequency of linkage. The TEI appeared to fulfill these criteria and, unexpectedly, student teachers facilitated the linkage between the TEI and user system.

The social interaction theory of change focuses, in part, on the diffusion of innovations through interpersonal contacts. Rogers and Shoemaker cited a variety of empirical studies which support the conclusion that a proper linkage mix facilitates diffusion. For example, they concluded that change agents' success is positively related to their effort and to a client rather than an institutional orientation.[7] The TEI representatives exhibited high effort (frequency of linkage) and a high client orientation (training and consulting activities and face-to-face interaction). The advantage of a face-to-face mode of linkage was addressed by Westley, who noted that face-to-face communication permits immediate and subtle feedback whereas impersonal, one-to-many communication is constrained and attenuates feedback.[8]

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[6] Ironside, *The Fall 1972 Follow-up*, *op*. *cit*., p. 6.

[7] Rogers and Shoemaker, *Communication of Innovation*, *op*. *cit*., p. 380.

[8] Bruce H. Westley, "Communication and Social Change," in *Processes and Phenomena of Social Change*, ed. by Gerald Zaltman (New York: John Wiley & Sons, 1973), pp. 219-220.

The research, development, and diffusion theory of change also addressed the relationship between change agents and users of innovations. Guba's typology of the diffusion stage of the research, development, and diffusion theory included training and intervening in order to create awareness and understanding of the innovation.[9] However, Guba did not expand on the relationship between the source of external intervention and the recipient of the innovation. The relationship has received attention from a variety of researchers. Lippitt acknowledged the lack of respect accorded centers of knowledge as resources for upgrading practice[10], and Guskin and Chesler noted, "Within elite academic institutions those involved in diagnosis and/or utilization are clearly of lower status and not quite legitimate."[11] Consequently, the linkage relationship entails more than two systems interacting in order to establish an innovation. The linkage relationship between the TEI and user system involves the perceptions of pracitioners toward academics, on the one hand, and the value orientation of the academic, on the other. Concomitantly, the value orientation of an R and D Center associated with an elite university may not support extensive field outreach and involvement with user systems. The criteria used to allocate status and rewards within the resource system deserve attention by diffusion researchers in order to determine the degree of support within the resource system for linkage activities.

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[9] Guba, "Development, Diffusion, and Evaluation," op. cit., p. 49.

[10] Lippitt, "A Comparative Analysis of the Research Utilization Process," op. cit., p. 17.

[11] Alan E. Guskin and Mark A. Chesler, "Partisan Diagnosis of Social Problems," in Processes and Phenomena of Social Change, op. cit., p. 354.

The linkage theory of change, although in an embryonic stage, addressed the significance of the resource and user system relationship in the utilization of new knowledge (diffusion of an innovation). Havelock stressed the importance of a relationship of trust and the perception by the user system that the resource system is concerned, willing to listen, and capable of helping. Havelock stated, "The reciprocal and collaborative nature of this relationship further serves to legitimize the roles of consumer and resource person and it builds a channel from resource to user."[12] The findings related to the concept of linkage and the need for a proper linkage mix among the categories of type, mode, and frequency correspond to Havelock's concern for reciprocal understanding of resource and user system roles and perspectives. Conclusions dealing with structure and capability are related to linkage in that these internal factors support external interorganizational relationships.

Structure

The internal variable of structure was measured according to coordination, hierarchical communication, specialization, and role clarity. Structure indirectly influenced diffusion by supporting the external variable of linkage. Orchestrated roles (internal coordination) facilitated the outreach activities of the resource and mediating systems. Reciprocal communication flow contributed to system-wide policy and plans for diffusing IGE/MUS-E. Homogeneous groupings of role expectations and skills (specialization) provided the basis of a focused approach required for linking resource, mediating, and user systems. An explicit conceptualization of role expectations aided the fulfillment of institutional goals.

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[12] Havelock, Planning for Innovation, op. cit., X, p. 17.

Although the structured measures were not consistent for each system, the TEI appeared to have the most highly-structured approach followed by the user system, resource system, and SEA. A number of inconsistencies may be explained by the intervening variable of role complexity. A high degree of specialization may be associated with a low degree of role clarity if the position entails complex, abstract, or varied responses to changing conditions. The resource system and the TEI exhibited high specialization and low role clarity, which may have been due to the complexity of their roles. Consequently, the complexity of linkage positions deserves attention by diffusion researchers.

The structure of the user system was entwined with the prescriptions of IGE/MUS-E and consequently, conclusions concerning the effect of user system structure were confounded by the dependent variable of diffusion. A distinction between the internal operations of the school related to IGE/MUS-E, and the internal responses to outside assistance require sensitive and detailed measures in order to separate the two domains. A structured approach for receiving, for participating with, and for learning from linkage agents is distinct from the structured approach associated with the organizational and administrative arrangements of IGE/MUS-E. A similar distinction should be made for the user system and the independent variable of capability.

Capability

The internal variable of capability was measured according to the time spent on IGE/MUS-E activities, skill and experience needed for one's role, influence, needs, and past innovative performance. The resource system appeared to have a high capability followed by the TEI, user system, and SEA. However, inconsistencies among the measures were apparent. The items of skill and experience and needs were not always consistent with the remaining capability items.

A high skill and experience rating implied that role expectations were complex, on the one hand, but that respondents felt deficient in a number of skills, on the other hand. A high needs rating implied that system performance was below desired levels, on the one hand, and that specific operating procedures already in practice were mandatory, on the other. Consequently, the skill and experience and needs items did not always present a consistent view of the capability of the responding system.

The capability of the user system was also confounded by the two variables of diffusion and linkage. Capability to maximize the benefits of external linkage was not synonymous with the capability to establish IGE/MUS-E. The dual role of the user system as recipient of external assistance and as adopter of the organizational and administrative configuration of IGE/MUS-E confounded the capability measures. Consequently, the distinction between user system linkage activities and adoption activities deserves attention by diffusion researchers.

For the most part, the internal variables of structure and capability had a less direct impact on diffusion than the external variable of linkage. Structure and capability appeared to contribute to linkage as opposed to directly contributing to diffusion. An expansion of the concept of linkage would incorporate structure and capability as enabling independent variables. Consequently, the major conclusion concerning structure and capability focuses on their interrelatedness with linkage and, concomitantly, on the need to incorporate them within the conceptual and operational definition of linkage.

The four theories of change previously discussed treat the internal factors of structure and capability with varying emphasis. The RD and D perspective emphasized a structured, linear approach to the translation of research into practice. A rational division of labor was described by Guba as ranging from research to implementation. Capability was not emphasized by the research, development, and diffusion approach; however, the social interaction perspective devoted considerable attention to the capability of the user system to adopt innovations.

Rogers and Shoemaker delineated a series of propositions, based on empirical research, concerning the capability of adopters of innovations. Although the unit of analysis for the social interaction theory of change was the individual adopter, the capability measures had institutional implications. Adopter characteristics included: more years of education, higher social status, more favorable attitude toward change, higher aspirations, and more cosmopolitan.[13] At an institutional level, Watson noted that past adoptions of innovations contributed to a high rate of future adoptions.[14] The emphasis of the social interaction approach upon capability was mirrored by the problem solver approach, which stressed the need for increasing the capability of the user system to solve its own problems. Lippitt, Watson, and Westley noted that the client, after receiving assistance in solving a problem, should be able to cope with and solve related problems.[15]

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[13] Rogers and Shoemaker, Communication of Innovations, op. cit., pp. 354-369.

[14] Goodwin Watson, "Resistance to Change," in Processes and Phenomena of Social Change, op. cit., p. 129.

The linkage theory of change, proposed by Havelock, treated both structure and capability within its broad typology of factors considered essential in the process of the utilization of knowledge. However, Havelock did not rank or group the structure and capability factors in relation to the factor of linkage. Structure was described by Havelock as fulfilling the need for division of labor (specialization), coordination of effort, and coherent diffusion plans. Capability, labeled capacity by Havelock, represented the need for resources by the resource and user systems.[16] Although Havelock failed to relate the factors in the linkage typology, his listing provided a stimulus for not only hypothesizing a relationship but also for operationalizing linkage, structure, and capability.

A major conclusion of the study is that structure and capability contribute to linkage, and linkage contributes to diffusion. Linkage, to be successful, depends, in part on normative effectiveness (structure) and human and instititional resources (capability). The interdependence of structure, capability, linkage, and diffusion and the operational measures of these variables deserves attention by diffusion researchers.

Theoretical Propositions

A series of theoretical propositions stemming from the findings and conclusions of the study was one major objective of the research on the diffusion of an innovation through interorganizational linkages. The delineation of verifiable propositions concerning the relation among variables was stated by Moore as the goal of any scientific field.[17] This goal is far from being fulfilled with respect to educational change. Chase reviewed the progress of studies on educational innovations and noted:

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[15] Lippitt, Watson, and Westley, The Dynamics of Planned Change, op. cit., p. 141.

[16] Havelock, Planning for Innovation, op. cit., XI, pp. 23-25.

> The studies that have been done on educational innovations have led to a number of imperfectly verified generalizations which fall short of providing tight conceptual frameworks for further research, speculation, or practice.[18]

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A major issue which emerged from the Conference on Strategies for Educational Change was the lack of well-defined, differentiated concepts in innovation-diffusion research.[19] However, there is a wide variety of components of change which militate against the development of a grand theory of change. Consequently, distinct treatment of the major change components, as a potential topic of theory, promises to be a more worthwhile effort.[20] The relationship between organizational systems in the diffusion of an innovation is one component of change and, therefore, a series of propositions reflecting this one component contributes to the eventual broader understanding of change.

The need for verifiable propositions to guide empirical research was elaborated by Merton in his discussion of middle-range theory, i.e.,

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[17] Wilbert E. Moore, Social Change (Englewood Cliffs, N. J.: Prentice-Hall, 1963), p. 30.

[18] Francis S. Chase, "Social Change in Perspective," in The Changing American School, John I. Goodlad, ed. (Chicago: National Society for the study of Education, Sixty-fifth Yearbook, Part II, 1966), pp. 282-283.

[19] Harbans S. Bhola and Virgil E. Blanke, "A Report of a Conference on Strategies for Educational Change" (Columbus: Ohio State University Research Foundation, September, 1966), p. 4.

[20] Dale G. Lake, "Concepts of Change and Innovation in 1966, " Journal of Applied Behavioral Science, 4 (January-March, 1968), p. 21.

"theories that lie between the minor but necessary working hypotheses . . . and . . . a unified theory that will explain all the observed uniformities of social behavior, social organization, and social change."[21] The development of middle-range theories of innovation diffusion was emphasized by Rogers and Shoemaker as the primary objective of their book.[22]

The practical benefit of addressing the need for middle-range theories of innovation diffusion stems, in part, from Goodlad's observation that in order to effect educational change one must first understand it.[23] Concomitantly, Zetterberg stressed that to ask for an explanation is to ask for a theory, i.e., a theory "is a system of information-packed descriptions of what we know; on the other hand, it is a system of general explanations."[24] However, there are a number of criteria for the development of propositions and middle-range theories. Rapoport noted that purely-descriptive, as opposed to explanatory models, tend to be trivial observations of reality[25], and Willer and Webster explained that concepts, as opposed to observables, transcend the constraints associated with individual instances.[26]

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[21] Robert K. Merton, Social Theory and Social Structure (New York: Free Press, 1968), p. 39.

[22] Rogers and Shoemaker, Communication of Innovations, op. cit., p. 91.

[23] Goodlad, "Change," op. cit., pp. 2-3.

[24] Hans L. Zetterberg, On Theory and Verification in Sociology (Totowa, N. J.: Bedminster Press, 1965), p. 11.

[25] Anatol Rapoport, "Various Meanings of Theory," American Political Science Review, 52 (Fall, 1968), p. 976.

[26] David Willer and Murray Webster, Jr., "Theoretical Concepts and Observables," American Sociological Review, 35 (1970), p. 753.

Not only are conceptual explanations less trivial and constrained, they are also more parsimonious, which is a major advantage of theory.[27]

The development of theoretical propositions, by definition, should include "precisely-defined determinants and results and specified relations between them . . . [and be] . . . of high informative value."[28] In addition, the theoretical propositions should have limited conceptual ranges conducive to the development of middle-range theory.[29] Theoretical propositions concerning the diffusion of an innovation through interorganizational linkages are entwined with the actual strategies for diffusion and, therefore, such propositions are directly relevant for those involved in the diffusion process. Kiesler summarized the connection between implementation and theory:

> But any statement whatsoever of a way to implement an objective of a social change program is a theoretical statement whether explicitly recognized or not.[30]

The propositions concerning innovation diffusion, linkage, structure, and capability were based upon the findings and conclusions of the study. The reformulation of the findings and conclusions into theoretical propositions rests, in part, upon removing the findings and conclusions from reflecting the real world. The benefit of such removal was noted by Willer and Webster: "The more nearly complete is any reflection of the world, the more temporary is its accuracy, and hence, its value."[31]

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[27] Zetterberg, Theory and Verification, op. cit., p. 51.

[28] Ibid., pp. 78-80.

[29] Merton, Social Theory and Social Structure, op. cit., p. 51.

[30] Charles A. Kiesler, "Evaluating Social Change Programs," in Processes and Phenomena of Social Change, op. cit., p. 755.

The first theoretical proposition focused upon linkage removed from operationalized (observable) descriptions. More observable propositions were delineated as corollaries. The second and third theoretical propositions treated linkage as the dependent variable and structure and capability as the independent variables.

I. The greater the linkage between systems possessing knowledge of an innovation and systems using the innovation, then the greater the diffusion of the innovation.

    A. The greater the linkage betwen the TEI and the MUS-E, then the greater the diffusion of IGE/MUS-E.

        1. The greater the training and consulting type of linkage, then the greater the diffusion.

        2. The greater the face-to-face mode of linkage, then the greater the diffusion.

        3. The greater the frequency of linkage, then the greater the diffusion.

    B. The greater the congruence between the physical configuration of the user system and the innovation, then the greater the diffusion.

        1. The more open the physical configuration of the LEA, then the greater the diffusion of IGE/MUS-E.

II. The greater the internal structure of linking systems, then the greater the linkage between systems.

    A. The greater the agreement of interorganizational linkage roles, then the greater the linkage.

    B. The greater the internal structure of the system possessing knowledge of an innovation, then the greater the linkage with the system using the innovation.

        1. The greater the internal coordination, then the greater the linkage.

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[31] Willer and Webster, "Concepts and Observables," op. cit., p. 755.

2. The greater the hierarchical communication, then the greater the linkage.

3. The greater the specialization, then the greater the linkage.

III. The greater the capability of linking systems, then the greater the linkage between systems.

A. The greater the capability of the TEI, then the greater the linkage with the MUS-E.

1. The greater the amount of time for linkage activities, then the greater the linkage.

2. The greater the skill and experience needed for linkage activities, then the greater the linkage.

3. The greater the linkage agent's influence, then the greater the linkage.

B. The greater the number of student teachers in the MUS-E, then the greater the linkage.

Implications

The research concerning the linkage of organizational systems in the diffusion of an innovation, and specifically in IGE/MUS-E, has resulted in a number of implications. The broadest implications rest with the resource system, due to its leadership role and resources and the expertise of its members. However, operational implications were also delineated for the mediating and user systems.

Wisconsin Research and Development Center

The primary implication for practice, emanating from the research, is for the R and D Center to promote, construct, and maintain strong linkages between TEIs and multiunit schools. Supporting linkages between the R and D Center and TEIs and SEAs will contribute to this effort. The R and D Center may contribute to the capability of TEIs to initiate linkages with multiunit schools by providing funding for released time for field outreach activities and by furnishing information and expertise for TEIs initiating such activities.

A second implication revolves around the need for explicit institutional roles and role agreement. The R and D Center's leadership role makes it the logical system for creating, testing, and revising role descriptions for each organization involved with IGE/MUS-E diffusion. Understanding of and agreement on organizational roles will facilitate linkage and thereby diffusion. In addition, role agreement will minimize false expectations which at times may develop among organizations working toward a common goal.

A third implication deals with the need for information about diffusion. Feedback mechanisms need to be developed between multiunit schools and the R and D Center in order to provide information to planners, developers, and implementors concerning the efficacy of the innovation and of the means for diffusing the innovation. The R and D Center's national position, which encompasses SEAs and LEAs, makes it the logical system for creating and implementing feedback mechanisms concerning the diffusion of IGE/MUS-E. Without such information, planners are not able to improve policy formulations or anticipate new needs, developers are not able to refine the innovation, and implementors are unable to evaluate their strategies.

State Education Agencies

The primary implication for practice dealing with SEAs revolves around the need for a supportive linkage position between the R and D Center, TEIs, and LEAs. The statewide perspective of SEAs, their funding capability, and their experience in coordinating state educational programs makes them the logical agency for facilitating interorganizational cooperation. Fulfillment of a linkage role between the R and D Center and TEIs and LEAs will enable SEAs to contribute to a statewide effort for IGE/MUS-E diffusion and to minimize duplication of effort among agencies within a state. Funding TEI outreach programs, funding the LEAs' IGE/MUS-E efforts, acting as a clearinghouse for IGE/MUS-E information, and maintaining communications channels with the R and D Center, TEIs, and LEAs are some of the needed components of an SEA supportive linkage role.

A second implication deals with the internal structure and capability of SEAs. The need for internal coordination, role specialization, and time to fulfill role expectations is critical for the fulfillment of a supportive linkage role. In addition, a statewide IGE policy and plan will not only contribute to the diffusion of IGE/MUS-E, but it will also provide a basis for improved internal management of SEA programs. It is the responsibility of SEA management to initiate a statewide IGE plan and to improve internal operations in order to carry out the plan.

Teacher-Education Institutions

The primary implication for practice dealing with TEIs is based upon their potential for a close linkage with LEAs. A training and consulting type of linkage, a face-to-face mode of linkage, and a mutually-agreed-upon frequency of linkage between TEIs and LEAs promises to be one of the most effective means for the diffusion of IGE/MUS-E. TEIs have the potential for fulfilling the three categories of linkage, viz., they have the expertise to provide training and consulting, the manpower to interact on a face-to-face basis, and the proximity to visit multiunit schools at an optimum frequency and time. However, in order to fulfill such a linkage role, internal factors are important.

A second implication dealing with TEIs is related to the internal factors of structure and capability vis-à-vis the linkage role with multiunit schools. Of primary importance is time to carry out linkage activities, i.e., an ad hoc program is not sufficient for developing and maintaining TEI-LEA linkage. The creation and implementation of a policy for field outreach activities, which include sufficient time and resources, is a prerequisite for meeting the optimum frequency of face-to-face contact. In addition, sufficient manpower must be committed toward IGE/MUS-E field outreach activities and coordination must be maintained among members of the TEI staff in order to avoid duplication and, concomitantly, strengthen individual efforts. The responsibility for creating supportive internal structures for a field outreach orientation rests with deans, department chairmen, and individual professors. Leadership from the former positions depends, for the most part, upon cooperation from the latter.

A third implication for practice involving TEIs deals with the variable of student teaching. As TEI enrollments decline and the manpower needs of multiunit schools increase, there is a corresponding increase in the importance of student teachers. The linkage relationship between TEIs and multiunit schools is legitimized and strengthened by the placement of student teachers in MUS-Es. However, conflicts may arise between TEIs and non-multiunit schools concerning the allocation of student teachers. The creation of a placement policy which gives priority to MUS-Es should also include the relationship between the TEI and non-multiunit schools. Publicizing the TEI-MUS-E student-teacher placement policy, with the intent of fostering understanding by non-MUS-Es, would be one possible solution to the problem.

Local Educational Agencies

The primary implication for practice involving multiunit schools centers upon their relationship with the TEI. Receptivity to TEI involvement is necessary for successful TEI-LEA linkage. A clear understanding of the TEI's role and mutual agreement concerning the depth of TEI involvement will contribute to successful TEI-LEA linkage and militate against non-receptivity of the TEI.

A second implication deals with the diffusion of IGE/MUS-E. The balance between adoption and adaptation needs to be carefully maintained by MUS-Es. Although such maintenance should be facilitated by the TEI, the LEA needs to be aware of and sensitive to dysfunctions which may result from unbalanced adaptations to the instructional and/or organizational-administrative design of IGE/MUS-E. Included in such adaptations are (1) lack of viability of SPCs, (2) using the IIC as a faculty meeting, (3) rotating the unit leader position, thereby preventing the development of strong leadership, (4) absence of released time for unit leaders, (5) lack of unit leader authority consonant with the responsibility of the position, (6) minimum utilization of staff members' instructional strengths and interests, and (7) eliminating the multi-age and non-gradedness features of the I and R unit.

A third implication centers upon the physical configuration of the multiunit school. An open-space configuration may facilitate

IGE/MUS-E by promoting communication, coordination, and cooperation. Consequently, LEAs considering physical-plant expansion or additions should investigate the efficacy of the open-space design as one means toward the diffusion of IGE/MUS-E. The removal of physical barriers within non-open-space buildings should also be considered by LEAs adopting IGE/MUS-E.

The implications for practice emanating from the research highlight the need for translating the findings of research into programs of action. Just as linkage between sources and users of knowledge may help to narrow the research-practice gap, so may the consideration and implementation of research implications narrow the research-practice gap. In addition to implications for practice, there are a number of implications for future research.

Future Research

There are three major areas in which future research on the diffusion of innovations through interorganizational linkages is needed: the dependent and independent variables of the study need to be refined, the propositions emanating from the study need to be explored, and other disciplines need to be incorporated into future diffusion research.

The dependent variable of diffusion needs to be expanded to include the role expectations of staff involved with the innovation. Consequently, detailed and explicit measures of role performance should be constructed, tested, and verified in order to measure the extent of diffusion.

The independent variable of linkage, encompassing the categories of type, mode, and frequency, should also include measures of the

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quality of the linkage. Although the dependent variable of diffusion reflects the effectiveness of linkage, additional factors may be involved in the relationship between external linkage agents and the internal recipients of linkage.

The independent variables of structure and capability need to be expanded to include other factors which may affect linkage. For example, past innovative performance was not a useful measure of capability, but community support may be. Structure needs to be expanded to include the linkage relationship itself. Organizational linkage roles, reflecting the nomothetic dimension of social systems theory, should be investigated in order to index role agreement and/or conflict among the systems involved with diffusion.

Another area for future research involves the propositions emanating from the study. Research is needed to refine and eventually verify or reject the propositions. Empirical measures of diffusion and linkage, once applied to a large segment of multiunit schools and TEIs, should provide a basis for the development of middle-range theory, the verification of the theory, and the formulation of generalizations concerning the population of multiunit schools and TEIs.

A final area for future research is related to the need for a multidisciplinary approach to the diffusion of an innovation. Political, communications, marketing-and-distribution, and values theory should be harnessed toward a focused investigation of innovation diffusion through interorganizational linkages. Although the multidisciplinary approach should be incorporated within organizational theory, since the major unit of analysis is the organization, this does not preclude new directions for diffusion research. For example, concentration on the nature of an innovation and explanations focusing on the effects, advantages, and dysfunctions following technical adaptations may contribute toward greater understanding of the complex interaction of variables associated with the adoption of an innovation.

Future researchers concerned with innovation diffusion should not only expand upon the limited dimension of interorganizational linkages, but they should also review, evaluate, and synthesize past research efforts. This will facilitate the incremental advances upon which depends the progress of science generally and educational administration specifically. As Selltiz stated:

> The progress of science and the scientific tenability of conclusions at any point in time are, after all, based on the coherence and consistency of many bits of fallible evidence, the articulation of theory, and the inter-locking of the individually fallible bits of evidence with theory.[32]

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[32] Claire Selltiz, et al., Research Methods in Social Science (New York: Holt, Rinehart & Winston, Inc., 1965), p. 544.

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APPENDIX A

AGREEMENT

THIS AGREEMENT is entered into as of this _____ day of ____________, 1973, by and between the BOARD OF REGENTS OF THE UNIVERSITY OF WISCONSIN SYSTEM (a Wisconsin corporation), hereafter called UNIVERSITY, and ________________ ____________________________________ as an IGE/MUS-E implementation Agent, hereafter called AGENCY.

WITNESSETH

WHEREAS, UNIVERSITY has received financial support from the United States Government through funding granted UNIVERSITY's department called WISCONSIN RESEARCH AND DEVELOPMENT CENTER FOR COGNITIVE LEARNING, hereafter called CENTER, to nationally implement, maintain and refine Individually Guided Education in Multiunit Elementary Schools, hereafter called IGE/MUS-E, by the establishment and maintenance of State IGE/MUS-E Networks, and

WHEREAS, UNIVERSITY wishes to engage the AGENCY to establish and/or maintain a State IGE/MUS-E Network to impelement, maintain, and refine IGE/MUS-E in schools,

NOW, THEREFORE, the parties agree as follows:

I. The terms of this Agreement shall be in force from the date it is fully executed until September 30, 1974.

II. The CENTER agrees to:

   A. Provide financial assistance in the amount of five thousand dollars ($5,000) to the AGENCY for the period of this Agreement for the purpose of establishing and/or maintaining a State IGE/MUS-E Network to implement, maintain, and refine IGE/MUS-E in schools. An initial payment of two thousand five hundred dollars ($2,500) to the AGENCY will be due on September 1, 1973, upon receipt of an invoice and the documents specified in III.I.1., and a final payment of two thousand five hundred dollars ($2,500) to the AGENCY will be due on September 1. 1974, upon receipt of an invoice and the document specified in III.I.2.

B. Participate in efforts to establish a National Organization of State IGE/MUS-E Networks.

C. Provide training opportunities in the form of leadership workshops for representatives of the State IGE/MUS-E Networks. In this regard, the CENTER proposes to conduct four (4) one-week leadership workshops on the Madison campus between July 1, 1973, and September 1, 1974. A maximum of 75 participants will attend each workshop. The CENTER will provide financial support to participants to allay travel and living costs.

D. Provide consultation services to the AGENCY as required. On-site consultation will be limited to one visit during the period this agreement.

E. Maintain a cooperative relationship with the University of Wisconsin Sears Roebuck Foundation Project in working with the State IGE/MUS-E Network.

III. The AGENCY agrees to:

A. Form and identify members of a State IGE/MUS-E Network that will include the following participating member groups:

1. The state education agency,
2. One or more teacher education institutions,
3. One or more large school districts (as defined by the state involved),

4. One or more small school districts (as defined by the state involved.)

B. Invite and encourage participation in the State IGE/MUS-E Network by other organizations, such as:

1. State teacher organizations,
2. State elementary school principals association,
3. State Parent-Teacher Organization,
4. Other state groups with a direct interest in elementary education.

C. Ensure that each member group appoints one person as a representative to the State IGE/MUS-E Network.

D. Ensure that a State IGE/MUS-E Network chairperson, executive secretary, or similar role will be appointed and that such person will be identified to the CENTER.

E. Ensure that one or more individuals will be selected to represent the State IGE/MUS-E Network in the National Organization of State IGE/MUS-E Networks.

F. Ensure that participating member groups will meet and define the roles and responsibilities of each group in the operation of the State IGE/MUS-E Network to provide for complete compliance with the Center's IGE/MUS-E implementation model.

G. Ensure that each participating member group in the State IGE/MUS-E Network will accomplish one or more of the following efforts, so that all of the following efforts are accomplished by the Network during the period of this agreement:

1. Plan and implement the installation of new IGE/MUS-E schools.

2. Plan and start a maintenance and refinement program.
3. Plan a preservice (undergraduate) teacher education program including IGE/MUS-E concepts and practices.
4. Plan a graduate program for unit leaders for IGE/MUS-E schools.
5. Plan a graduate program to prepare elementary principals for IGE/MUS-E schools.

H. Provide continuing effort to increase the number of participating member groups in the State IGE/MUS-E Network.

I. Furnish the CENTER the following reports:

1. Prior to September 1, 1973,
    a. A line item budget to support the $5,000 specified in II.A.
    b. A planning document covering the period of the agreement. The plan should include but not be limited to projections as to the numbers of each type of participant involved in the State IGE/MUS-E Network and the roles and responsibilities of each.
2. Prior to September 1, 1974,
    a. A final report which summarizes all activities specified in Section III of this agreement that were accomplished during the year. This report should also include plans for subsequent years and recommended changes to approach and operation to improve the IGE/MUS-E Network model.

J. Utilize the financial assistance provided by the CENTER for State IGE/MUS-E Network purposes only and limited to expenses other than salaries, such as travel, communications, supplies, services, honoraria, and conferences.

IV. In the event the AGENCY elects to designate a teacher education institution or a similar organization as the agent to coordinate and be responsible for the fiscal responsibilities associated with this Agreement and the State IGE/MUS-E Network, indicate below the name and address of the institution so designated, as well as the name of the responsible individual.

V. This Agreement is subject to cancellation by the UNIVERSITY in the event funding from the United States Government is withdrawn or otherwise not available to the CENTER.

Agreed to:	Agreed to:
Board of Regents of the University of Wisconsin System	
____________________	____________________ AGENCY
____________________	____________________ Name
____________________ Date	____________________ Date

MEMORANDUM OF AGREEMENT

BETWEEN

THE BOARD OF REGENTS OF THE UNIVERSITY OF WISCONSIN SYSTEM

AND

This agreement enumerates the conditions and responsibilities that will exist between the Board of Regents of the University of Wisconsin System as represented by the Wisconsin Research and Development Center for Cognitive Learning (Center) and (Subcontractor) in connection with preparing personnel for differentiated staff roles in Multiunit Elementary Schools.

I. The Subcontractor agrees to:

A. offer and conduct a one-week institute for a maximum of ______ __________________________ to be supported by Center funds during the first semester 1972-73.

B. utilize the financial assistance awarded as specified in the budget (see Attachment A) that the Subcontractor has prepared and attached to this memorandum of agreement.[1]

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[1] Budget guidelines are as follows:

$ 75.00	participant stipend
15.00	materials
60.00	instruction and other expense
$150.00	per institute participant

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C. indicate to the Center by June 1, 1972, the person(s) responsible for the one-week institute.

D. employ staff as necessary to conduct the one-week institute.

E. provide support (office space, secretarial services, copying/duplicating services etc.) to the staff responsible for the administration and operation of the one-week institute.

F. send one to three persons to the Center-conducted institute for leaders in teacher education during the summer of 1972. (See Section II, paragraph C below).

G. prepare, cooperatively with representatives of other institutions, the outline of the one-week institutes during the Center-conducted institute referenced in I.F. above. This implies that the representatives of the various teacher education institutions will reach agreement on participant selection criteria, objectives, program format, source of participants, dates of institutes, and other matters.

H. submit a report to the Center describing the results of the one-week institute. The report will cover admission criteria, assessment materials utilized, materials distributed to participants, an evaluation of the effectiveness of the institute as related to attainment of institute objectives, and a listing of participants by name and school affiliation. The report is due within one month after completion of the institute.

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II. The Center agrees to:

A. provide financial assistance to the Subcontractor in the amount of $150 per participant (maximum . ________) for conducting the one-week institute.

B. pay as specified in II.A. above, upon receipt from the Subcontractor, of invoice and the report specified in I.H. above. The invoice shall specify the actual number of participants, and payment will be at the rate of $150 per participant up to a maximum of $

C. plan and conduct an invitational institute at Madions, Wisconsin during the summer of 1972 for personnel from institutions that provide one-week institutes, personnel from state educational agencies, and personnel from large school districts who may supply IGE/MUS-E inservice education to staffs of local schools during 1972-73.

D. arrange for the Subcontractor to rent or purchase specified inservice audio-visual and printed materials related to individually guided education and the multiunit school in conducting their teacher-education programs.

E. accept requests for consultant assistance from the Subcontractor and respond positively to such requests within time and budget limitations.

F. assist in organizing and coordinating a national network of teacher-education institutions involved in preparing personnel for MUS-E's.

G. arrange for a meeting in Madison of representatives of education institutions to plan and solve problems that may be encountered.

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The terms of the Memorandum of Agreement shall be in full force and effect from the time it is fully executed until May 31, 1973.

Accepted by:

Board of Regents of the
University of Wisconsin System

Ralph Farnsworth
Director, U.W. Purchasing

Herbert J. Klausmeier
Director, Wisconsin Research and
Development Center for Cognitive
Learning

Date

Date

APPENDIX B

UNIVERSITY OF WISCONSIN-MADISON
DEPARTMENT OF EDUCATIONAL ADMINISTRATION

Educational Sciences Building
1025 West Johnson Street
Madison, WI 53706
Telephone (608)

May 10, 1973

Wisconsin Research and Development Center
1025 West Johnson Street
Madison, Wisconsin 53706

Dear

Thank you for agreeing to participate in the MUS-E interview. I understand our appointment is _________.

The interview focuses on the inter and intra-organizational linkages between the Research and Development Center, State Departments of Education, Teacher Education Institutions, and selected multiunit schools. Your opinion concerning the State Departments of Education, Universities, and multiunit schools in the vicinity of these universities comprises the major portion of the interview schedule. Factors related to your role in the Research and Development Center constitute the remaining items.

The interview is strictly confidential and requires approximately one and one-half hours to complete.

Thank you again for your cooperation.

Sincerely,

Douglas Paul
Research Associate

DP/pir
cc: Professor James Lipham

UNIVERSITY OF WISCONSIN–MADISON
DEPARTMENT OF EDUCATIONAL ADMINISTRATION

Educational Sciences Building
1025 West Johnson Street
Madison, WI 53706
Telephone (608)

March 27, 1973

Name
State Education Agency

Dear

Prior to the interview on the inter and intraorganizational effects on the diffusion of MUS-E, I would greatly appreciate having the opportunity to study any reports, documents, budgets, and/or legislation dealing with MUS-E in (state). I understand that teacher education institutions are closely allied with the Department of Education. Concomitantly, materials dealing with this arrangement would also be of interest.

Thank you for your cooperation and interest. Prior to our appointment, I will forward additional information to you outlining the nature of the interview.

Sincerely,

Douglas Paul
Research Associate

UNIVERSITY OF WISCONSIN–MADISON
DEPARTMENT OF EDUCATIONAL ADMINISTRATION

Educational Sciences Building
1025 West Johnson Street
Madison, WI 53706
Telephone (608)

April 24, 1973

Professor
Teacher Education Institution

Dear

Thank you for your assistance in selecting multiunit schools; your interest has facilitated my dissertation fieldwork. I understand our appointment is ________. I will be interviewing MUS-E personnel at (   ), (   ), and (   ) schools.

The interview focuses on the inter and intraorganizational relationships between the Research and Development Center, the Department of Public Instruction and multiunit schools. There are fifteen open-ended questions which require approximately one and one-half hours to administer. The responses are confidential in order to assure a frank and candid interview session.

Thank you again for your assistance and cooperation in facilitating my dissertation fieldwork.

Sincerely,

Douglas Paul
Research Associate

DP/pir

UNIVERSITY OF WISCONSIN-MADISON
DEPARTMENT OF EDUCATIONAL ADMINISTRATION

Educational Sciences Building
1025 West Johnson Street
Madison, WI 53706
Telephone (608)

March 9, 1973

Principal
Multiunit School

Dear

Thank you for allowing me to interview you and two of your staff members. As you suggested, I will come to your office about ______.

A brief explanation of the study in advance may provide you with an idea of what I am researching as part of my graduate program in Educational Administration. I will be focusing on the organizational relationships between schools, universities and state departments as they relate to the implementation of MUS-E. Internal factors within each organization will also be addressed. The interview consists of sixteen open-ended, free-response type questions. Your personal opinion and feelings will be confidentially treated.

My objective is to describe, as honestly and as frankly as possible, the relationships that exist between school and the university, the State Department of Education, and the Wisconsin R and D Center. It is not an evaluation of these organizations or your school, but rather an exploratory study for my dissertation.

Thank you for your interest and cooperation. Your assistance has facilitated my dissertation field work.

Sincerely,

Douglas Paul
Project Assistant

DP/cs
cc: Professor James M. Lipham

APPENDIX C

CONFIDENTIAL

3-2-73
4-10-73 revised

BIOGRAPHICAL BACKGROUND

NAME ______________________________ DATE ________________ START__________
FINISH_________

AGE____ HIGHEST DEGREE ___________________________ YEAR AWARDED____________

POSITION__________________________ YEARS IN POSITION____________________

FORMER POSITION _______________ YEARS IN POSITION ____________________

Number of Years MUS-E_____ Agency _______

1. COULD YOU PLEASE GIVE ME SOME IDEA OF WHAT YOU HAVE DONE IN THE LAST FIVE YEARS AND WHAT YOU EXPECT TO BE DOING IN THE FUTURE?

NOW I AM GOING TO ASK YOU SOME QUESTIONS ABOUT ________________________ SCHOOL(S). THE FIRST QUESTION WILL DEAL WITH I & R UNITS, THE SECOND WITH THE IIC, AND THE THIRD WITH THE SPC.

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3-2-73/ 4-10-73 Revised
R & D Center Form
SEA Form
Teacher Ed Form
LEA

DIFFUSION ITEM - I & R Units

2. DO YOU CONSIDER THAT THE ______________________ SCHOOL HAS ESTABLISHED I & R UNITS?

(Note: Definition of I & R Unit (non graded) is two or more grade levels not exceeding 150 children, one unit leader, two or three staff teachers, and a combination of aides, teaching interns and student teachers, the students should vary three to four years in chronological age.

SCHOOL ______________________ I & R UNITS:

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SEA
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LEA

SCHOOL ______________________ I & R UNITS:

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R & D Center Form
SEA Form
Teacher Ed Form
SEA

DIFFUSION ITEM

3. DO YOU CONSIDER THAT THE ______________________ SCHOOL HAS ESTABLISHED AN INSTRUCTIONAL IMPROVEMENT COMMITTEE?

(Note: Definition of IIC comprises principal and all unit leaders, meets at least once a week to plan, develop, coordinate, and implement the instructional program.)

SCHOOL ______________________ IIC:

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SCHOOL ______________________________ IIC:

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R & D Center Form
SEA Form
Teacher Ed Form
LEA

DIFFUSION ITEM - SPC

4. DO YOU CONSIDER THAT THE ____________________________ DISTRICT HAS ESTABLISHED A SYSTEM WIDE POLICY COMMITTEE?

(Note: Definition of SPC comprises the superintendent or his designee, central office consultants, and representative principals, unit leaders, and unit teachers. The SPC facilitates the transition from self-contained classroom organization to the I & R Unit and the IIC configuration is responsible for developing and implementing system-wide policies for MUS-E. It meets at least once per semester.)

SCHOOL ______________________ SPC:

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SCHOOL ______________________ SPC:

NOW I WILL BE ASKING YOU SOME QUESTIONS ABOUT YOUR RELATIONSHIPS WITH VARIOUS AGENCIES. FIRST YOUR ACTIVITIES, THEN HOW YOU GO ABOUT CARRYING OUT THESE ACTIVITIES, AND LAST HOW OFTEN YOU CARRY THEM OUT.

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TEI
SEA
LEA

LINKAGE ITEM- TYPE-MODE-FREQUENCY

5. PLEASE DESCRIBE THE ACTIVITIES YOU DO WITH THE ______________________
(R & D CENTER, SEA, TEI, LEA).
6. HOW DO YOU CARRY OUT THESE ACTIVITIES?
7. HOW FREQUENTLY DO YOU CARRY THEM OUT?

PROBE: Number of Workshops and Lengths

ACTIVITY	MODE	FREQUENCY

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TEI
SEA
LEA

LINKAGE ITEM - TYPE - MODE - FREQUENCY

ACTIVITY	MODE	FREQUENCY

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R & D Center
SEA
TEI
LEA

NOW I AM GOING TO ASK YOU ABOUT INTERNAL FACTORS RELATED TO YOUR JOB AND THE PEOPLE YOU WORK WITH.

STRUCTURE ITEM - INTERNAL COORDINATION

8. HOW CLOSELY DO YOU WORK WITH ______________________________?
(R & D CENTER IMPLEMENTATION TEAM/SEA STAFF/TEI STAFF/UNIT LEADER/UNIT TEACHER/PRINCIPAL)

(Note: Principal may work with central office staff and unit leaders; unit leaders may work with central office staff, other unit leaders, the principal, or unit teachers.)

PROBE: HOW CLOSELY, HAVE YOU ALWAYS WORKED CLOSELY?

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SEA
TEI
LEA

STRUCTURE ITEM - HIERARCHIAL COMMUNICATION

9. DO YOU DIRECTLY COMMUNICATE WITH THE ________________________________?
(CENTER DIRECTOR/CHIEF STATE SCHOOL OFFICER/CHAIRMAN OF DEPT./
SUPERINTENDENT/PRINCIPAL/UNIT LEADER)

____

(Note: Communication may be face-to-face, written, informal, formal, or joint attendance at a particular function in which you personally interact with him. For unit leaders stipulate in addition to IIC)

____

PROBE: HOW OFTEN - ABOUT WHAT?

____

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TEI
LEA

STRUCTURE ITEM - SPECIALIZATION

10. ARE THE ACTIVITIES OF YOUR UNIT DIVIDED UP AMONG THE STAFF?

(Note: Specialization may take on various forms, e.g. works only with certain schools, etc.)

PROBE: SPECIALIZATION INFORMAL - FORMAL - HOW EXTENSIVE?

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STRUCTURE ITEM - ROLE CLARITY

11. WOULD YOU DESCRIBE YOUR JOB AS STRUCTURED OR UNSTRUCTURED?

(Note: Probe extensively for specific expectations, feelings of role ambiquity versus role clarity.)

WAS IT ALWAYS THIS WAY? DID YOU KNOW WHAT TO EXPECT WHEN YOU FIRST TOOK THE JOB?

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LEA

CAPABILITY ITEM - F.T.E.

12. WHAT PERCENTAGE OF YOUR WORKING DAY WOULD YOU ESTIMATE THAT YOU SPEND ON MUS-E ACTIVITIES?

(Note: As compared to previous role in non-MUS-E setting.)

PROBE: Percent of time spent on MUS-E

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CAPABILITY ITEM - SKILLS AND EXPERIENCE

13. WHAT KINDS OF SKILLS AND EXPERIENCE DO YOU FEEL ARE NEEDED TO PERFORM YOUR JOB?

(Note: Probe to see if respondent feels he has those skills.)

PROBE: Feels comfortable with role, expectation-needs congruent

---

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TEI
LEA

CAPABILITY ITEM - INFLUENCE

14. WITHIN THE ________________, HOW MUCH INFLUENCE DO YOU FEEL YOU HAVE REGARDING MUS-E IMPLEMENTATION?

____

(Note: Probe to clarify influence e.g., has input into policy formulation, consults with appropriate decision-makers about MUS-E in respondent's agency.)

____

PROBE: In a political sense? Position in hierachy?

____

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SEA
TEI
LEA

CAPABILITY ITEM - NEEDS

15. WHAT DO YOU FEEL ARE THE MOST IMPORTANT ELEMENTS YOUR AGENCY NEEDS TO SUCCESSFULLY (INSTALL NATIONALLY/DISSEMINATE STATEWIDE/TRAIN TEACHERS FOR/ADOPT) MUS-E?

(Note: Insert appropriate agency role and probe to clarify essential means.)

PROBE: What should be done? What would you change?

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SEA
TEI
LEA

CAPABILITY ITEM - PAST INNOVATIONS

16. AS OPPOSED TO WORKING WITH MUS-E, HOW DO YOU FEEL ABOUT THE PAST PERFORMANCE OF YOUR AGENCY IN WORKING WITH OTHER INNOVATIONS?

(Note: Probe to clarify for each system, e.g. R & D Center - other components of IGE, SEA - other innovations, TEI - other innovations, LEA - other innovations.)

PROBE: What are some of the other innovations in your district?

COMPLETE BIOGRAPHICAL BACKGROUND

THUMBNAIL SKETCH

APPENDIX D

Upper Unit

MASTER SCHEDULE (Revised February 1973)

Time	Monday	Tuesday	Wednesday	Thursday	Friday
8:55-9:05	Homeroom Period- -				
9:05-9:40	4F Art	5M Art	6P Art	5S Art/H+S	6S Art/H+S
	5S Mus	4S Mus	4S Mus	4S Mus	4S Mus
	5M P/E	4F P/E	4F P/E	4F P/E	4F P/E
	4S Sci	5S Sci	6S Sci	5M H+S/Art	6P Sci
	6P SS	6P SS	5M SS	6P SS	5M SS
	6S RC	6S RC	5S RC-Sci	6S RC-Sci	5S RC
				or	
				Lib Sci	
9:40-10:15	4F Art	5M Art	6P Art	5M Art/H+S	6S H+S/Art
	5M Mus	4F Mus	4F Mus	4F Mus	4F Mus
	5S P/E	4S P/E	4S P/E	4S P/E	4S P/E
	4S Sci	5S Sci	6S Sci	5S H+S/Art	6P Sci
	6S SS	6S SS	5S SS	6S SS	5S SS
	6P RC	6P RC	5M RC-Sci	6P RC-Sci	5M RC
				or	
				Lib Sci	
10:15-10:25	Open Period- -				
10:30-11:00	4S Art	5S Art	6S Art	4S Art/H+S	6P Art/H+S
	6S Mus	6S Mus	5S Mus	6S Mus	5S Mus
	6P P/E	6P P/E	5M P/E	6P P/E	5M P/E
	4F Sci	5M Sci	6P Sci	4F H+S/Art	6S Sci
	5M SS	4F SS	4F SS	5M SS	4F SS
	5S RC	4S RC-Sci	4S RC	5S RC	4S RC

Upper Unit

MASTER SCHEDULE (Revised February 1973)--Continued

Time	Monday	Tuesday	Wednesday	Thursday	Friday
11:00-11:30	4S Art 6P Mus 6S P/E 4F Sci 5S SS 5M RC	5S Art 6P Mus 6S P/E 5M Sci 4S SS 4F RC-Sci	6S Art 5M Mus 5S P/E 6P Sci 4S SS 4F RC	4F Art/H+S 6P Mus 6S P/E 4S H+S/Art 5S SS 5M RC	6P Art/H+S 5M Mus 5S P/E 6S Sci 4S SS 4F RC
11:30-12:00	Spelling	Spelling	Wis Dsgn	Wis Dsgn	Wis Dsgn
12:00-12:50	Noon Hour- -				
12:55-1:45	Rdg-30 min Lang-20 min	Rdg	Rdg-30 min Lang-20 min	Rdg	Rdg-30 min Lang-20 min
1:45-2:15	Study Period - Teacher Planning 4F 5S 6P	6S 4S 5M	4F 5S 6P	Spelling	Stdy Pd 5M 6S 4S
2:15-2:30	Recess -				
2:30-3:30	Math	Math	Math	Early Release	Math

APPENDIX E

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PROTOTYPIC ITEMS FOR THE DIFFUSION OF MUS

I & R unit

1. Does your school have Instructional and Research units? Yes No Don't Know

    a) If "Yes," how many grades are unitized? ________

    b) How many grades are not unitized? ________

2. Are the students in the I & R units from two or more grade levels? Yes No Don't Know

    a) If "Yes," what grades are included? ________

3. Do the students in the I & R unit vary three to four years in chronological age? Yes No Don't Know

    a) If "Yes," what is the age span? ________

    b) How many students are in the I & R unit? ________

    c) Are students grouped according to specific objectives and performance criteria? Yes No Don't Know

    d) Are students divided into groups of varying size? Yes No Don't Know

    e) If "Yes," how often per day are different sized groups formed? # day ________

4. Is there a lead teacher called a Unit Leader? Yes No Don't Know

    a) If "Yes," is the unit leader position permanent? Yes No Don't Know

    b) If not permanent, is it rotated among the staff? Yes No Don't Know

5.	Does the unit leader receive released time?	Yes	No	Don't Know
	a) If "Yes," how many hours per week?	# Hrs.Per Week ________		
	b) Does the unit leader receive additional salary?	Yes	No	Don't Know
	c) Does the unit leader serve on lunch duty?	Yes	No	Don't Know
6.	Are there two or three staff teachers called unit teachers?	Yes	No	Don't Know
	a) If "Yes," how many?	Yes	No	Don't Know
7.	Are there aids, teaching interns, and/or student teachers?	Yes	No	Don't Know
	a) If "Yes," how many of each?	# aides ________ # interns ________ # student teachers ________		
8.	Do you have unit planning meetings?	Yes	No	Don't Know
	a) If "Yes," how often do you meet per seek?	# Per Week ________		
	b) What is the average number of hours per meeting?	# Hrs.Per Mtg. ________		
9.	Do students physically move from one subject group to another during the school day?	Yes	No	Don't Know
	a) If "Yes," how often per day?	# Per Day ________		
10.	Does the unit staff teach all subjects?	Yes	No	Don't Know
	a) If "No," are individual teachers responsible for specific subjects?	Yes	No	Don't Know

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11.	Are the teachers assigned to work with specific sized groups?	Yes	No	Don't Know
	a) If "Yes," how many teachers from the unit are assigned?		# Teachers ________	
12.	Are teachers assigned to specific skill groups?	Yes	No	Don't Know
13.	Are skill groups made up of students from different grades and ages?	Yes	No	Don't Know
14.	Are teachers in the unit responsible for a group of students throughout the school year?	Yes	No	Don't Know
15.	Are physical education, art, and music taught by all the unit staff?	Yes	No	Don't Know
	a) If "No," is there a teacher responsible for each of the activities for the entire unit?	Yes	No	Don't Know
16.	When a teacher works with a large group of students, does the remaining staff assist?	Yes	No	Don't Know
	a) If "No," do they leave the room?	Yes	No	Don't Know
17.	Do teachers in the unit ever refer to the students as "my students"?	Yes	No	Don't Know
	a) Do they ever refer to "my room"?	Yes	No	Don't Know

IIC

1.	Does your school have an Instructional Improvement Committee?	Yes	No	Don't Know
	a) If "Yes", is it composed of the principal and all unit leaders?	Yes	No	Don't Know

2. How often does the IIC meet per week? # Per Week ________

   a) What is the average number of hours per meeting? # Hrs.Mtg. ________

3. Does the IIC plan, develop, coordinate and implement the instructional program in the school? Yes No Don't Know

4. Is an agenda prepared before each IIC meeting? Yes No Don't Know

   a) If "Yes," is it distributed to the unit leaders before the meeting? Yes No Don't Know

5. Are minutes of the meeting recorded? Yes No Don't Know

   a) If "Yes," are they distributed to the school staff? Yes No Don't Know

6. What percentage of time do you speak at the IIC meeting? % of Time ________

7. Does the principal make the final decisions at the IIC meeting? Yes No Don't Know

SPC

1. Does the district have a Systemwide Program Committee? Yes No Don't Know

   a) If "Yes," what is the membership?

      Superintendent ________
      Designee of Supt. ________
      Central office consultants ________
      MUS principals ________
      Representative unit leaders ________
      Representative unit teachers ________
      Others ________

   b) How often does the SPC meet per year? # Per Yr. ________

	c) What is the average number of hours per meeting?		# Per Mtg. __________	
2.	Is an agenda prepared before each SPC meeting?	Yes	No	Don't Know
	a) If "Yes," is it distributed to all members before the meeting?	Yes	No	Don't Know
3.	Are minutes of the meeting recorded?	Yes	No	Don't Know
	a) If "Yes," are they distributed to all members?	Yes	No	Don't Know
4.	What percentage of time do you speak at the SPC meeting?		% of Time __________	
5.	Are districtwide concerns involving IGE/MUS discussed at the SPC?	Yes	No	Don't Know
6.	Does the SPC initiate and coordinate involvement with the Regional IGE Coordinating Council?	Yes	No	Don't Know
7.	Does the SPC initiate and coordinate involvement with the State IGE Coordinating Council?	Yes	No	Don't Know

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